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STEEL

For forty-eight years—IRON TRADE REVIEW

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

This Week in Steel

LIKE hail on a tin roof, second quarter financial reports of steel producers continue to beat an ominous tattoo upon the industry. By comparison some reports, like Bethlehem's (Page 25), appear the more favorable, but with the doubtful satisfaction of a man with one broken leg contrasting his plight with that of a man afflicted with two. . . . First to take the impact of what once were termed earnings statements was Wall Street. More general and open discussion of wage rates is a secondary reaction (Page 23). In grim succession have followed lowered or omitted common dividends, drastic economies in management, revision of salaries. Is the Fourth Horseman—a reduction of labor rates—already riding?

Freight Rates Up, or Wage Rates Down?

At the moment this Horseman may be riding a train, for, as opposition to the railroads' petition for higher freight rates is entered at a series of hearings (Page 24) beginning Aug. 4 at Portland, Me., wages may become an issue. It will be asked, indirectly, should shippers be assessed to maintain trainmen's wages? If steel and other industries are compelled to cut their labor, would the railroad brotherhoods—aristocrats of organized labor—be able to stand out, even at the cost of a strike? . . . Not in a year has any development like U. S. Steel's curtailment of common dividend and salaries provoked so much discussion. One view (Page 35) is that Steel's disposition to face the facts may hasten the ultimate recovery.

Dump Cars, or What Have You?

In steel and railroads the administration at Washington apparently finds less concern than in coal. Twenty-five more invitations, with R. S. V. P. at the lower left, have been issued (Page 24) by Secretary Doak to bituminous coal mine operators, seeking another parley. . . . In some measure, coal's difficulties are traceable to more economical use. In the past decade the production of fuel briquets (Page 49) has more than doubled, 25 plants now being operated. In spite of the depression, 1930 was better than a million-ton year for this growing, conserving, industry. . . . Such economy, however, is commonplace compared with the thriftiness of the western steel company which has traded (Page 27) its private car for a string of dump cars.

Russia Getting Railroad Conscious

Were there a David Harum with this steel company he would probably take the dump cars and arrange an advantageous swap with Russia, which continues worried over transportation. Al-

Acme-P & A Photo

London bridge will never break down: Not with these girders—each weighing 32 tons. They are claimed to be the largest ever used in bridge building in London, England

Acme Photo

Great Britain claims to have the first aircraft-carrying submarine in the world. The plane is catapulted from the deck

ready the soviets' volume of railroad traffic exceeds that of any other European nation, is second only to the United States, and fresh emphasis (Page 27) is being laid upon rehabilitation of the railroads. . . . Some technical assistance is being sought by Russia in Germany, which has developed a type of track construction already being experimented with (Page 44) by a dozen American lines.

For Dependability They Turn to Steel

Transportation by highway also has its problems. Additional strains set up by front wheel brakes have created favor for tubular front axles. To manufacture these on a production basis has resulted, among other things, in an interesting process for continuous heat treating (Page 39). Axles, with king pin bearings welded in place, travel through the furnace on an alloy chain conveyor. . . . No less has air travel placed reliance upon steel. An aircraft power plant is no more dependable than its gears, in the production of which (Page 41) maximum care is essential. Clean steel, high grade forging work and accurate control of heat treating are the basis for reliable gears.

August the Dog Days for Autos

Less highway transportation is being turned out this month, Detroit being reconciled to August proving the lowest production month of the summer season. But, with August scarcely a week old, the automotive industry is foreseeing improvement in September. Other Detroit automobile gossip (Page 33) has it that one-fifth of Ford's output of cylinder heads is of the special high-compression type, Dodge is offering three new deluxe series, the Fords manufactured after present inventories of parts have been worked off will embody important changes, Chrysler continues to make it a race with his new Plymouth, Buick may go to free-wheeling in the fall, Packard next January is expected to bring out revolutionary changes.

Machinery Idle, but Not Obsolescence

Progressive machine tool manufacturers who have revolted against the old dictum of "first down, last up" have achieved noteworthy orders. They have stressed that obsolescence is not suspended in periods of depression (Page 54) but rather that it is expedited; they have become order makers instead of order takers. . . . Somewhat similar initiative has been displayed by manufacturers of welding equipment who offer two methods of welding machinery bases, crane girders and similar heavy sections (Page 44). One makes use of heavy gas-cut sections and requires a minimum of welding; the other involves the building-up of light weight members and reinforcing them with adequate rib and tubular bracing.

Seven of Ten Augusts Have Had It

August is heedless of the tradition that it brings improvement in steel production. Seven of the past ten Augusts have developed a moderate gain in the daily ingot rate, but the current month opens with a decline (Page 70) of two points, to 30 per cent. . . . In general, the steel markets continue listless (Page 63) with structural steel requirements still relatively better than other major outlets, fresh inquiry this week exceeding 30,000 tons. . . . On the Continent the same lethargy is apparent (Page 90). In England, approaching holidays cast their shadow. . . . The Germans, with their bent for organization, have formed (Page 24) a brass cartel.

Pig Iron Surrenders Gains of Decade

Nothing forward of 1921 is of any avail in comparing pig iron production for July. In point of daily rate, monthly total and stacks in blast, only the depression of a decade ago affords an intelligible yardstick (Page 28). With a net loss of nine in active stacks, only 82 out of 303 potential pig iron producers were in blast July 31. . . . Apparently, the last half of 1931 will not better by much the poor showing of the first half in pig iron output, based on the American Iron and Steel institute's analysis (Page 29) for the first half. Dissected by states, the reduction in production was well distributed.

Cut in Wage Rates Is Next Step but Is Not Imminent

NEW YORK—Reduction or omission of common stock dividends, economies in management, adjustment of salaries—these are the three initial steps taken by principal producers of steel in attempting to cope with the depression.

Next, logically, is a reduction of wage rates. Since the sharp cut in the common dividend of the United States Steel Corp. and the announcement that salaries would be lowered, discussion of the wage situation has been more general.

No official statements are forthcoming, but it may be assumed that wage rates of steel labor in general will not be changed until the effects of reduced dividends and salaries have been determined and the extent of the expected fall upturn in business is discernible.

Curtailment Equals Reduction

Officials of the steel industry appear to take the attitude that labor has taken no small part in the adjustment of business through curtailment of its hours of work. No immediate change is probable, but if the three initial moves to meet curtailed revenues are insufficient, hourly rates will be the fourth step, prior to passing of preferred dividends or bond interest.

Increasing attention is being paid the matter of railroad labor. Shop employes, it is felt, have suffered as much as other classes of labor, but those trainmen still having runs have experienced little personal grief. Shippers are disposed to believe that before freight rates are advanced, brotherhood employes should share in the general reduction of income.

Labor, it is believed, is accepting adjustments with good grace, with realization that no other course was open to employers. And once a large share of labor has taken its reduction, it may regard it as unfair for other labor blocs—such as the railroad brotherhoods—to stand out.

Chicago Mills To Stand Pat on Wage Rates

Chicago—Steelworks producers here are not planning to reduce wages of mill employes, at least for the present. Executives feel that the present system of such part-time employment as can be distributed among employes under the existing volume of business is the only way to meet conditions at this time. In recent months there has been much staggering of work, so that as many employes as possible could be kept on.

Although office and executive salaries in most cases have been cut 10 per cent or more, for the time being the day rates are to remain unchanged. Office help has been much reduced at some plants.

Two local producers have had expansion programs which have kept forces working in much greater proportion than general business conditions would seem to justify. One producer for the greater part of last year had hundreds of its employes engaged on expansion work. Ordinarily, without this construction, these forces would have been laid off.

This year another steelworks in the district has started plant development which has maintained a higher average of employment and operations than would occur otherwise.

U. S. Steel Salary Reduction Is 10 to 15 Per Cent

EFFECTIVE Aug. 15, employes of the United States Steel Corp. receiving salaries of $1800 to $5000 annually will receive a reduction of 10 per cent. On salaries from $5000 to $10,000 the cut will be 12½ per cent, and over $10,000 it will be 15 per cent.

A further adjustment, affecting higher-salaried employes with greater force, will be the omission of any bonus this year. The reduction in the common stock dividend from a $7 rate to $4 also affects those employes purchasing stock on the Corporation's purchase plan.

Some independent companies which have eliminated one day's work and one day's pay each week have, in effect, reduced salaries 16 2/3 per cent. By way of comparison, the Steel corporation in 1921 made two cuts of 10 per cent each.

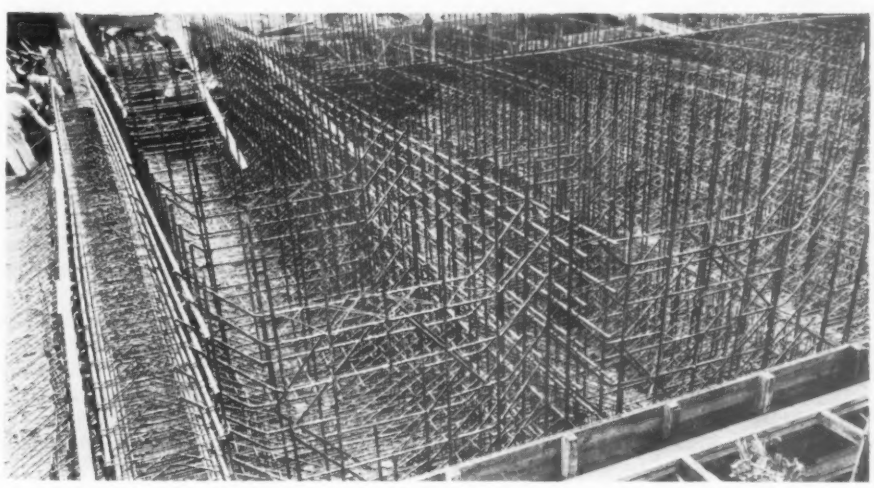
Hoover Would Co-ordinate Unemployment Activities

Washington—Through a conference held between President Hoover and Judge John Barton Payne, chairman of the American Red Cross, it has been learned that the administration is making an effort to co-ordinate unemployment activities of all federal, state and private agencies, in preparation for next winter's activities.

Following the conference, Judge Payne stated that he had been summoned to the White House for a general discussion as to the best way to bring about co-operation among all unemployment agencies. He explained that the Red Cross, as such, will take no part in any employment program.

Cuts Pay 9 Per Cent

Chicago—Western Electric Co. announces a decrease in working hours to 5 days a week and a half-day reduction in pay, amounting to about 9 per cent, affecting all officers and employes, totaling about 60,000, through-



Not a jungle, but an intricate maze of reinforcing steel for the reconstruction of shipway No. 2, Philadelphia navy yard. Steel and concrete are replacing timber which has deteriorated since it was erected in 1917. This portion to be reconstructed is 100 feet wide, 604 feet long, and will support a load of 80,500 pounds per linear foot. Upon completion it will be used to build the cruiser MINNEAPOLIS. *Truscon Steel Co., Youngstown, O., supplied the reinforcing steel*

out the company's organization. Besides the Hawthorne works here, the company's plants are at Kearny, N. J., and Baltimore.

First of 10 New Inland Barges Put in Service

Birmingham, Ala.—First of 10 steel barges recently awarded by the war department for Inland Waterways Corp., Birmingham, the steel fabricated by Ingalls Iron Works Co., Birmingham, with the Alabama Dry Docks & Shipbuilding Co., Mobile, doing the construction, is now in service on the Warrior river. Its capacity is three and half times as much as the old barges.

Only 6951 New Freight Cars Added in First Half

Railroads of the United States in the first six months of 1931 placed 6951 new freight cars in service, according to the American Railway association. In the same period last year, 49,208 new freight cars were placed in service, and two years ago 32,794.

Of the new freight cars installed, 2934 were box cars, compared with 26,016 installed in the first half of 1930. There were also 2957 new coal cars placed in service in the first half of this year, compared with 18,343 installed during the same period last year. In addition, the railroads in the first six months installed 382 flat cars, 670 refrigerator cars, and eight other miscellaneous cars.

Surplus of Good Order Freight Cars Decreases

Class I railroads on July 14 had 571,410 surplus freight cars in good repair and immediately available for service, the American Railway association, Washington, states. This was a reduction of 7799 cars compared with July 7.

Surplus coal cars on July 14 totaled 222,678, a decrease of 944 cars within approximately a week while surplus box cars totaled 280,667, a decrease of 6405 for the same period.

Reports also showed 29,272 surplus stock cars, a decrease of 502 under the number reported on July 7, while surplus refrigerator cars totaled 14,306, an increase of 311 during the week between the reports.

Spang Pipe Welding Unit In Experimental Stage

Spang, Chalfant & Co., Pittsburgh, is engaging in experimental work on an electric welding pipe production unit. Construction of a commercial plant depends on results of this experimentation, but it is not expected to be started for at least nine months, it is stated.

Uses Alloy Concrete Bars

New York—About 300 tons of deformed bars containing 5 per cent chrome are being used for reinforcing the new concrete dam of the New-Canawha Power Co., at Alloy, W. Va. The decision to order bars of this analysis resulted from tests which indicated to this company that steel containing 5 per cent chrome has substantially five times the corrosion resistance of plain carbon steel. The 5 per cent chrome bars, as rolled, average 180,000 pounds tensile strength and 130,000 pounds in elastic limit, thus permitting the use of lighter sections.

Opponents of 15 Per Cent Freight Rate Rise Open Hearing at Portland

WASHINGTON—At Portland, Me., Aug. 4, the interstate commerce commission, represented by Commissioner Claude R. Porter and Examiner Irving L. Koch, inaugurated its series of hearings at which opponents of the 15 per cent advance in freight rates sought by the railroads will have their day.

Other hearings at which opposition to the proposed advance will be heard are: Washington, Aug. 10; Portland, Oreg., Aug. 12; Atlanta, Ga., Aug. 17; Dallas, Tex., Aug. 21; Kansas City, Mo., Aug. 26; San Francisco, Aug. 17; Salt Lake City, Utah, Aug. 24. At these hearings various members of Division 7 of the commission, and examiners, will sit.

At the hearing at Chicago beginning Aug. 31 the entire division will sit. It is possible that, to save time, two hearings may run concurrently.

The commission has issued a notice to parties who expect to introduce evidence at Portland, San Francisco and Salt Lake City in which it points out that only limited time is available for the hearings and therefore "it is essential that evidence to be presented there be condensed to the greatest possible extent, that, so far as practicable, the evidence of kindred interests be presented by one witness, and that cumulative evidence and duplication be reduced to a minimum."

The exact order of hearing the testimony has not yet been decided upon but in general it is expected that state commissions desiring to present evidence will be heard first, these to be followed by representatives of shippers of the major products and these, in turn, to be followed by representatives of individual interests.

Chairman Brainard, of the commission, has again taken cognizance of the growing sentiment concerning railroad wages. He has reiterated the position of the commission that evidence would not be received in the current proceedings concerning wages.

There is a feeling, however, that a consideration of all factors bearing on an added burden to shippers must include the wage matter.

Word has been received by the commission from the Railway Labor Executives association in which the association goes on record as favoring a freight rate increase "in instances where the facts disclose that such increases are justified," but opposing any reduction in railway wages.

The Business Week In Washington

INFORMATION made public at the White House states that President Hoover has persuaded Henry P. Fletcher to retain the chairmanship of the tariff commission until Nov. 15. It had previously been announced that he would leave Sept. 15.

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Inquiries have been sent to 25 additional bituminous coal mine operators inviting them to attend a conference, according to Secretary of Labor Doak. He has refused to divulge the answers received from the 125 letters which he sent out a week or so ago.

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According to information received by the department of commerce, negotiations for establishment of a German cartel for domestic sales of brass have been successfully concluded.

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Unemployment in industry increased again in July, according to reports from trade unions made to the American Federation of Labor.

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Bureau of labor statistics announces that reductions in wage rates in the manufacturing industries as well as the number of persons affected by cuts showed declines in the month ended June 15, compared with the month ending May 15.

Bethlehem Dividend Reduced; Other Makers Report Losses

BETHLEHEM Steel Corp., Bethlehem, Pa., net income was $489,199 less in the second quarter than in the first. For the three months ended June 30 income before preferred and common dividends were paid was $1,452,743.

Income applicable to the preferred stock requirement of $1.75 was $1.45 a share. In the first quarter of 1931, 6 cents a common share was earned, over the preferred requirement.

Dividend on the common stock was placed on a $2 annual basis, compared with $4 during the first quarter, and $6 annually from July of 1929 to the close of 1930.

Total income for the second quarter was $6,394,057, which less interest charges of $1,811,039 and depreciation of $3,130,275 left the income figure of $1,452,743.

With the quarterly apportionment of 50 cents for each of 3,200,000 common shares, plus the preferred dividends, the deficit for the second quarter was $1,897,257.

Expects Slack August

President E. G. Grace looks for little early improvement in steel business. He does not expect August business to support the Bethlehem operating rate, which recently has been at 37 per cent, and as for an anticipated pick-up in September, he said, somewhat facetiously: "Let's pray and not anticipate." He added that the steel industry was never in such good condition to take care of itself in a period of depression as it is at present.

Mr. Grace said Bethlehem had made no salary or wage cuts. Where there has been a reduction in compensation it has been brought about by a reduction in working hours.

Steel prices are showing considerable stability, Mr. Grace asserted. While business is insufficent to test prices, second quarter earning statements now coming out indicate the importance of price stability. "No steel company can afford to sell at present prices," he declared. "Practically all companies are losing money."

The volume of Bethlehem's unfilled orders was $57,334,794 as of June 30, against $65,803,609 at the end of the previous quarter and $59,906,772 on June 30, 1930.

Mr. Grace denied reports that Bethlehem is negotiating for properties in the Birmingham district.

National Covers Dividend

National Steel Corp., Pittsburgh, and subsidiaries report for the six months ended June 30 net profit of $3,459,376, after charges, equivalent to $1.60 a share.

In the first half last year National Steel reported net profit of $6,100,917 or $2.84 a share.

Inland Profit Larger

Inland Steel Co., Chicago, reports for three months ended June 30, net profit of $772,757, after all charges, including depreciation, taxes, etc., equivalent to 64 cents a share on 1,200,000 shares of common.

This compares with first quarter net profit of $633,873 or 53 cents a share on common and net profit of $2,620,300 or $2.18 a share on common in the second quarter of 1930.

For the first half of this year Inland had net profit of $1,406,630 or $1.17 a common share, against $5,341,618 or $4.45 a share in the corresponding six months of 1930. Directors declared the regular quarterly dividend of 62½ cents a share on common stock, payable Sept. 1 to record Aug. 14.

Continental's Value Off

Continental Shares Inc., Cleveland, reports further decline in value of its portfolio as of June 30. Investments carried at a cost of $133,766,248 had an indicated market value of $78,648,649 June 30. Operations first half of 1931 resulted in a profit of $21,589 after expenses and interest but excluding loss on security transactions. Net loss on securities sold during the period totaled $4,707,507.

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Sharon Steel Hoop Co., Sharon, Pa., reports operating profit of $29,913 in the second quarter against operating deficit of $88,204 in the first quarter. After provision for depreciation and bond interest and discount, deficit for the first half year was $681,016.

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Link-Belt Co., Chicago, reports net profit of $450,981, for the six months ended June 30, after all charges. This is equal after dividend requirements on the 6½ per cent preferred stock to 45 cents a share and compares with net of $1,306,199, or $1.65 a share on the common in the similar period of 1930.

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Wheeling Steel Corp., Wheeling, W. Va., reports for the second quarter net loss of $588,204, after all charges, including federal taxes. This compares with net profit of $1,098,356 for the corresponding three months of 1930. Net loss for the first half of 1931 was $1,216,828, which compares with net profit of $2,351, 580 for the first six months of 1930.

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A. M. Byers Co., Pittsburgh, has

Bethlehem's Financial Statement for Second Quarter and Comparisons

	Second Quarter, 1931	First Quarter, 1931	Second Quarter, 1930	Year, 1930	Year, 1929
Total income, including subsidiaries	$6,394,057	$7,551,977	$13,025,558	$45,233,664	$67,469,245
Less interest charges	1,811,039	1,842,454	1,746,111	7,172,577	11,217,180
Balance	4,583,018	5,709,523	11,279,447	38,061,147	56,252,065
Less depreciation, depletion and obsolescence	3,130,275	3,767,581	3,587,952	14,217,741	14,009,085
Net income	1,452,743	1,941,942	7,691,495	23,843,406	42,242,980
Preferred dividends	1,750,000	1,750,000	1,750,000	7,000,000	7,000,000
Common dividends	1,600,000	3,200,000	4,800,000	19,200,000	15,600,000
Total	3,350,000	4,950,000	6,550,000	26,200,000	22,600,000
Surplus for period	*1,897,257	*3,008,058	1,141,495	*2,356,594	19,642,980

*Deficit.

declared the regular quarterly dividend of $1.75 a share on preferred stock, payable Nov. 2 to record Oct. 15.

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National Steel Car Corp., Pittsburgh, reports for fiscal year ended June 30, earnings equal to $2.62 a share against $8.83 a share in preceding years.

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Pittsburgh Screw & Bolt Corp., Pittsburgh, reports for the first half of 1931 net loss of $80,852, after charges, against net profit of $1,249,479 for the first half last year.

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Colorado Fuel & Iron Co., Denver, has declared the regular quarterly dividend of $2 a share on preferred stock, payable Aug. 25 to record Aug. 10.

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Jones & Laughlin Steel Corp., Pittsburgh, has omitted the dividend on common stock due at this time. Regular quarterly preferred dividend of $1.75 was declared, payable Oct. 1 to record Sept. 11.

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Eastern Rolling Mill Co., Baltimore, reports for the second quarter net loss of $151,198, after charges. This compares with net loss of $67,048 for the first quarter and profit of $18,413 for the second quarter of 1930. For the first half the company had net loss of $218,246.

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Blaw-Knox Co., Blawknox, Pa., reports the first six months net profits after deducting interest, depreciation and taxes of $632,761, equal to 48 cents a share. This compares with $1,694,002, equal to $1.28 a share, in the first half of 1930. The quarterly dividend has been reduced from 37½ cents per share to 25 cents.

Gray Iron Production Declines Under May Total

New business of gray iron foundries fell off sharply in June, according to the report of 78 foundries to the Gray Iron Institute Inc., Cleveland. Production also declined.

New business was at 40.1 per cent of normal last month, against 51.2 per cent in May and 58.4 per cent in June, 1930. "Normal" is average monthly production during the last three calendar years.

Production was at 53 per cent of normal in June, against 60.7 per cent in May. This was based on the reports of 151 foundries.

Unfilled orders at the close of June were at only 28.8 per cent of normal, against 39 per cent in May.

Only four of 121 reporting foundries regard the business outlook as good. Forty regard it as fair,54 as poor and 23 as bad. However, the business outlook was practically unchanged from a month ago and, according to the institute, an upturn in late summer or early fall seems assured. Production of the smaller foundries, producing from one to 400 tons monthly, was found to be holding up best.

Foundry Equipment Orders Lowest of the Depression

Index of foundry equipment orders fell even further in June when a figure of 40.9 was reported by members of the Foundry Equipment Manufacturers' association. There were no order cancellations in June. Shipments dropped from May's 118.6 to 90.4 in June; unfilled orders at the close of June were 70.1, dropping considerably from the index of 123.8 in May. Following is a comparison of gross order indexes:

	1931	1930	1929	1928
Jan.	65.3	160.1	180.5	132.7
Feb.	54.7	196.4	197.0	123.6
Mar.	174.4	164.1	209.4	138.6
Apr.	57.7	122.8	172.6	107.7
May	54.1	92.7	177.7	335.6
June	40.9	102.1	177.3	149.1
July	.....	90.6	219.3	94.8
Aug.	.....	85.2	229.5	278.0
Sept.	.....	91.0	216.3	170.0
Oct.	.....	50.0	245.3	185.0
Nov.	.....	45.3	128.6	197.8
Dec.	.....	59.8	208.0	166.5

Base: Average monthly shipments for 1922-23-24 taken as 100.

Steel Casting Orders Lowest in Ten Years

At a low since July of 1921, new orders for commercial steel castings were only 26,041 tons in June, or 17.9 per cent of capacity. Shipments were off from May to 24 per cent capacity in June. Principal manufacturers report the following to the department of commerce:

1930	Total bookings tons	Per cent of capacity	Total production tons	Per cent of capacity
June	61,164	42.4	90,795	62.9
6 mo.	583,609	67.4	636,571	73.5
July	57,850	40.1	78,977	54.7
Aug.	50,370	34.9	64,303	44.6
Sept.	49,542	34.3	61,919	42.9
Oct.	45,552	31.6	59,522	41.2
Nov.	48,123	33.3	44,290	30.7
Dec.	49,387	34.2	46,290	32.1
Year	884,433	51.1	991,872	57.3
1931				
Jan.	46,810	32.1	46,294	31.8
Feb.*	40,320	27.7	49,548	34.0
March*	48,184	33.1	56,755	39.0
April*	46,039	31.6	48,282	33.2
May*	39,052	26.8	43,154	29.6
June**	26,041	17.9	34,923	24.0
6 mo.**.....	246,446	28.2	278,956	31.9

*Revised. **Preliminary.

Shape Bookings, Shipments Improve During June

June's bookings of fabricated structural steel gained over the low for 1931 set in May, and at 177,200 tons ordered represented engagement of 44.3 per cent capacity. Shipments were also improved. Both bookings and shipments are estimated for the entire country from the actual report of 231 firms on the former and 225 for the latter classification. Following is the department of commerce monthly compilation:

	Bookings		Shipments	
1930	Tonnage	Per cent capacity	Tonnage	Per cent capacity
June	253,600	63.4	280,000	70.0
6 mo.	1,498,800	62.5	1,604,000	66.8
July	270,000	67.5	274,800	68.7
Aug.	252,000	63.0	262,400	65.6
Sept.	155,600	38.9	243,200	60.8
Oct.	209,200	52.3	239,200	59.8
Nov.	151,200	37.8	195,200	48.8
Dec.	152,800	38.2	168,400	42.1
Year	2,689,600	56.0	2,987,200	62.2
1931				
Jan.	162,400	40.6	172,000	43.0
Feb.	158,400	39.6	166,400	41.6
Mar.	184,400	46.1	151,200	37.8
April	292,800	73.2	158,400	39.6
May	152,800	38.2	148,000	37.0
June	177,200	44.3	162,400	40.6
6 mo.	1,128,000	47.0	958,400	39.9

Babbitt Output Decline Continues in June

Marking the third consecutive monthly decline, babbitt metal total production was 2,306,940 pounds in June. Losses were corresponding in production for sale and for producers' own use. Half-year figures are over one-third less than 1930, as department of commerce figures show:

In Pounds

1930	(a) Total production	(b) Sales	(c) Production for own use
June	3,912,744	2,742,435	1,170,309
6 mo.	25,978,833	19,860,573	6,118,260
July	3,060,962	2,160,505	900,457
Aug.	2,918,043	1,964,213	953,830
Sept.	8,892,287	1,850,468	1,041,819
Oct.	3,101,187	2,068,544	1,032,643
Nov.	2,695,087	1,904,256	790,831
Dec.	2,106,522	1,459,208	647,314
Year	42,752,921	31,267,767	11,485,154
1931			
Jan.	2,855,693	2,089,574	766,119
Feb.	2,507,222	1,819,749	687,473
March	2,661,211	1,829,477	831,734
April	2,560,243	1,844,311	715,932
May	2,408,781	1,678,204	730,577
June	2,306,940	1,605,009	701,931
6 mo.	15,300,090	10,866,324	4,433,766

(a) By 43 plants. (b) By 33 manufacturers who produce for sale, including 5 who also report consumption of own metal. (c) By 15 establishments which manufacture their own metal, including 5 which also produce for sale.

Boiler Orders Gain

With a total of 820 new orders for steel boilers in June, a gain was shown over May's revised figure of orders for 658 units. The June orders had an area of 678,859 square feet, against 603,401 in May.

For the half year, 3911 steel boilers have been ordered; for the corresponding 1930 period, 6452 boilers had been placed. Seventy-three man-

ufacturers report the foregoing to the department of commerce.

Pittsburgh Ohio River Shipments Depressed in June

River shipments of iron and steel products in the Pittsburgh district continued to decline during June, the movement for that month being the smallest in more than a year. Traffic over the Monongahela and Ohio was less than one-fourth of that during June, 1930. Comparative monthly figures follow:

1930	Allegheny	Monongahela	Ohio
June	700	137,603	144,099
6 mo.	2,110	576,587	588,115
July	1,125	132,161	147,558
August	2,600	96,498	107,948
Sept.	5,100	106,079	109,129
Oct.	11,490	105,451	138,109
Nov.	17,850	75,202	95,644
Dec.	3,800	46,972	50,403
Year	44,075	1,133,950	1,236,906
1931			
Jan.	50	90,405	88,089
Feb.		58,847	75,264
March		76,137	104,792
April	1,250	57,751	91,570
May	1,330	35,373	59,611
June	500	21,340	46,945
6 mo.	3,130	339,853	466,271

Trades Its Private Car For Dump Car Train

Denver—Judicious trading by officials of the Colorado Fuel & Iron Co. recently removed a liability and increased the working equipment at the steel mills in Pueblo, Colo.

The company's palatial private car, "The Sunrise," acquired in 1910 but not used for several years, has been traded to the Burlington railroad for dump cars to be used in the mills.

Illinois Employment Down

Chicago—June employment in Illinois decreased 1.3 per cent from May, and payrolls are down 1 per cent, it is shown by the Illinois department of labor, as a result of reports from 1360 industrial establishments. Manufacturing industries reported losses of 3 per cent in employment and 4.6 per cent in payrolls. Non-manufacturing industries reported gains of 1.6 per cent in employment and 4.1 per cent in wage payments.

General Motors at Fair

Chicago—General Motors Corp., Detroit, has contracted with the Century of Progress exposition trustees for a $1,000,000 exhibition building at the Chicago world's fair in 1933. This is the first corporation to contract for an exclusive building.

Soviet Railroad Needs Loom As Industry Is Expanded

ALTHOUGH figures given out by the Soviet government indicate that Russia is second only to the United States in volume of freight moved by railroads, exceeding all European countries by a wide margin, those in authority find that the rate of development of the Soviet railroads still lags far behind that of the Socialist industries.

As a result, according to a bulletin of the U. S. S. R. chamber of commerce for western trade, the central committee has decided on a program of rehabilitation of railroad facilities to bring them more in line with requirements for caring for the transportation made necessary by the industrial development.

Propose New Plants

This program as outlined includes chiefly electrification, the introduction of more powerful locomotives and of electric trains, 50 and 60-ton rolling stock, automatic couplers and brakes, the automatic block system, water supply and mechanization of facilities for loading and unloading cars. To attain these ends the department of ways and communications is planning a number of new plants to supply the necessary equipment for such improvements. It is planned that in 1932-33 more than 3690 kilometers of railroad line must be electrified.

This development will furnish a tremendous outlet for the products of the new industrial plants built and building, absorbing a heavy tonnage of iron and steel, as well as of other products and in turn making possible transportation of the raw and finished materials to and from these plants. At present Russia has about 50,000 miles of railroad but so vast are distances in Russia that this is far from sufficient to meet needs, while equipment is much less than is required.

Another vast outlet for products of the new industrial organization, again consisting largely of steel and iron products, is involved in the plans for municipal economy. This includes equipment for street cleaning, sprinklers and garbage vans; piping for sewerage, water and central heating, with facilities for production of house fittings and installations; street railways and cars, for which a special street car-building plant will be started in 1932; heating and laundry equipment, kitchen and bath fittings; public utilities, for which a special corporation is to be organized; construction of bakeries, co-operatives and restaurants in large numbers also is planned.

During the current year it is proposed to increase the regional electrical stations to provide larger output of electricity for heating and lighting purposes. In Moscow it is planned within a year to increase the number of autobusses to a total of 2000.

Philadelphia Scrap Men Study Group Buying

Group purchasing of oxygen and acetylene is being considered by the Philadelphia chapter of the Institute of Scrap Iron and Steel Inc. A questionnaire developed that annual consumption of these gases by members of the chapter aggregated five million feet of oxygen and one million feet of acetylene. The chapter is also considering a plan for group insurance of employes.

This heavy duty truck crane equipped with a 95-foot boom and working at a 61-foot radius without outriggers set an 800-pound truss on the far side of a church dome, 56 feet high. The entire job was completed in 20 hours, and consisted of unloading 49 tons of steel at a siding on trucks, unloading at the job, and erecting

Photo, Crane Service News

Ironmaking Nearing 1921 Low As More Stacks Blow Out

AS PRODUCTION of coke pig iron in the United States continues to dwindle, it is necessary to refer to statistics of 1921 to make comparisons. Dropping substantially again in July, the total output, average daily rate and total of active furnaces approached the historically low points recorded in the depression of 10 years ago.

With 9 more blast furnaces being blown out or banked in July, the active total on the last day of the month was 82, a figure which was the lowest since Aug. 31, 1921, when only 69 were making iron. In addition, at least six important furnaces banked for appreciable periods during the month. Since on March 31, when the year's high-point total of 116 was attained, 34 stacks have been taken out of production.

July's average daily rate was 46,470 gross tons, a rate which was 8129 tons, or 14.9 per cent, below the June level of 54,599 tons. This rate was the lowest since October, 1921, with 39,821 tons per day. For July, one year ago, the rate was 85,110 tons.

Total iron production in July was 1,440,576 gross tons, which compared with the 1,637,998 tons of the preceding month, showed a loss of 197,422 tons, or 12 per cent. Not since November, 1921, with 1,414,958 tons, has production been so low.

For the seven months ended July, the 1931 production amounted to only 12,538,698 tons, or only 60 per cent of the 1930 total of 20,943,055 tons. For the corresponding period in 1929, the output was 25,420,048, or more than double the 1931 figure.

Only 2 furnaces resumed activity in July, while 11 were blown out or banked. Of the merchant class, none was blown in and 3 blown out; of the nonmerchant or steelworks class, 2 became active and 8 became inactive. The total of 82 active furnaces compares with 91 on June 30, 105 on May 31, 113 on April 30 and 144 on July 31, one year ago.

Relating production to capacity, operations in July were at the rate of 32.3 per cent, compared with 37.9 per cent in June and 44.7 per cent in May.

Furnaces resuming operation during the month were: In Ohio: Lorain No. 5, National Tube Co. In New York: Lackawanna F, Bethlehem Steel Co.

Furnaces blown out included: In Ohio: Hubbard No. 2, Youngstown Sheet & Tube Co. In Pennsylvania: Donora No. 2, American Steel & Wire Co.; Brooke, E. & G. Brooke Iron Co.; Edgar Thomson F and H, Carnegie Steel Co.; one Eliza and one Aliquippa, Jones & Laughlin Steel Corp. In Alabama: Woodward No. 3, Woodward Iron Co.; Ensley No. 6, Tennessee Coal, Iron & Railroad Co. In Indiana: Madeline No. 1, Inland Steel Co. In Utah, Provo, Columbia Steel Co.

When the Mystic Iron Works blew out its blast furnace at Everett, Mass., Aug. 1, the unit completed a campaign of almost 5 years. Placed in blast as a new furnace on Sept. 27, 1926, it has operated continuously and has produced 801,230 tons of pig iron. It is said that the stack could have operated one or two years longer on the original lining. During the shutdown the furnace will be relined and reconditioned. The company has a stock of approximately 100,000 tons of iron, which it is said, largely represents unfilled orders.

AVERAGE DAILY PRODUCTION

	1931	1930	1929	1928
Jan.	55,337	91,573	110,742	92,113
Feb.	61,114	101,640	114,942	99,954
Mar.	65,448	104,930	119,662	103,199
Apr.	66,986	106,371	122,106	106,066
May	64,355	104,564	125,753	106,219
June	54,599	97,817	123,887	102,745
July	46,470	85,110	122,016	99,120
Aug.	.....	81,455	120,845	101,193
Sept.	.....	75,893	116,548	102,120
Oct.	.....	69,851	115,747	108,824
Nov.	.....	62,182	106,081	110,155
Dec.	.....	53,732	91,513	108,702
Ave.	59,144	86,141	115,808	103,365

JULY PIG IRON PRODUCTION

	No. in blast last day of month		Total tonnage made	
	July	June	Merchant	Nonmerchant
Ohio	22	22	73,947	270,157
Pennsylvania	21	27	56,416	336,351
Alabama	10	12	86,425	64,709
Illinois	7	7	59,260	68,609
New York	6	5	44,569	33,993
Colorado	1	1		
Indiana	5	6		
Maryland	3	3	186	213,308
Virginia	0	0		
Wisconsin	0	0		
Kentucky	1	1		
Massachusetts	1	1		
Tennessee	0	0	12,503	55,876
Utah	0	1		
West Virginia	2	2		
Michigan	3	3		
Minnesota	0	0	13,800	32,691
Missouri	0	0		
New Jersey	0	0		
Spiegel and ferro—all states			4,574	13,202
Total	82	91	351,680	1,088,896

MONTHLY PRODUCTION

	1931	1930	1929
Jan.	1,715,443	2,838,751	3,433,028
Feb.	1,711,192	2,845,937	3,218,376
Mar.	2,028,906	3,252,822	3,709,518
April	2,009,582	3,191,119	3,663,167
May	1,995,001	3,241,477	3,898,344
June	1,637,998	2,934,508	3,715,104
July	1,440,576	2,638,441	3,782,511
Aug.	.....	2,525,105	3,746,198
Sept.	.....	2,276,781	3,496,454
Oct.	.....	2,165,374	3,588,146
Nov.	.....	1,865,458	3,182,420
Dec.	.....	1,665,715	2,836,917
Total	12,538,698	31,441,488	42,270,183

RATE OF OPERATION
(Relation of Production to Capacity)

	1931[1]	1930[2]	1929[3]	1928[4]
January	38.4	65.0	79.0	66.8
February	42.5	72.1	82.2	72.5
March	45.4	74.5	85.5	74.8
April	46.5	75.4	87.4	76.8
May	44.7	74.2	89.8	77.0
June	37.9	69.3	88.5	74.4
July	32.3	60.3	87.2	71.8
August	.....	57.8	86.4	73.3
September	.....	53.8	83.3	74.1
October	.....	49.6	82.6	78.9
November	.....	44.1	75.8	79.8
December	.....	38.1	65.5	78.8

[1]Based on capacity of 52,515,875 tons Dec. 31, 1930; [2]on capacity of 51,490,680 tons; [3]on capacity of 51,069,895 tons; [4]on capacity of 50,329,750 tons. Capacities by American Iron and Steel institute.

Former Ratio Preserved by Pig Iron for First Half

With totals greatly reduced from the corresponding period of 1930 pig iron production for the first half of 1931, as compiled by the American Iron and Steel institute, preserves unchanged the relative output of the various sections of the country.

Total production of all kinds of pig iron during first half was 11,165,840 gross tons, compared with 12,965,559 tons for the last half of 1930 and 18,055,348 tons for first half of 1930. Of this total Pennsylvania produced 3,362,840 tons, 30.1 per cent; Ohio 2,495,646 tons, 22.4 per cent; Illinois and Michigan 1,487,309 tons, 13.3 per cent; Illinois 1,229,434 tons, 11 per cent and Alabama 1,017,287 tons, 9.1 per cent.

Charcoal pig iron accounted for 43,203 tons, compared with 52,232 tons in first half of 1930. Tennessee, Mississippi and Michigan were the only states participating in this grade. Ferroalloy production totaled 268,388 tons, compared with 514,262 tons in first half of 1930.

Of the total of 11,165,389 tons of pig iron 8,860,948 tons were for maker's use and only 2,304,441 tons were for sale in the merchant market. On the other hand, 56,871 tons of ferroalloys were for maker's use and 211,517 were for sales.

Six Months Pig Iron Output Low

Compiled by American Iron and Steel Institute

HALF-YEARLY PRODUCTION OF PIG IRON BY STATES.*

States.	Blast furnaces. (a) In blast Dec. 31, 1930.	June 30, 1931. In	Out	Total	Production of pig iron not including ferro-alloys—Gross tons. First half of 1930.	Second half of 1930.	First half of 1931.
Massachusetts	1	1	0	1			
New York	5	5	15	20	1,238,331	770,481	580,268
New Jersey	0	0	2	2			
Pennsylvania	28	25	67	92	5,722,782	4,244,836	3,362,840
Maryland	2	3	2	5			
Virginia	1	0	7	7			
West Virginia	3	2	1	3	1,013,259	909,055	792,594
Kentucky	1	1	1	2			
Mississippi	0	0	1	1			
Tennessee	1	0	4	4			
Alabama	8	11	13	24	1,412,132	970,089	1,017,287
Ohio	14	21	35	56	3,928,199	2,760,459	2,495,646
Illinois	10	7	18	25	1,957,738	1,386,893	1,229,434
Indiana	7	6	12	18	2,322,926	1,611,286	1,487,309
Michigan	5	4	4	8			
Minnesota	1	0	3	3			
Missouri	0	0	2	2	459,981	312,460	200,011
Colorado	2	1	4	5			
Utah	1	1	0	1			
Total	90	88	191	279	18,055,348	12,965,559	11,165,389

(a) Completed and rebuilding pig iron furnaces.

HALF-YEARLY PRODUCTION OF COKE PIG IRON BY STATES.*

Massachusetts	1	1	0	1			
New York	5	5	15	20	1,238,331	770,481	580,268
New Jersey	0	0	2	2			
Pennsylvania	28	25	67	92	5,722,782	4,244,836	3,362,840
Maryland	2	3	2	5			
Virginia	1	0	7	7			
West Virginia	3	2	1	3	1,004,686	908,458	785,767
Kentucky	1	1	1	2			
Tennessee	0	0	3	3			
Alabama	8	11	13	24	1,412,132	970,089	1,017,287
Ohio	14	21	35	56	3,928,199	2,760,459	2,495,646
Illinois	10	7	18	25	1,957,738	1,386,893	1,229,434
Indiana	7	6	12	18	2,279,267	1,567,535	1,450,933
Michigan	3	3	1	4			
Minnesota	1	0	3	3			
Missouri	0	0	2	2	459,981	312,460	200,011
Colorado	2	1	4	5			
Utah	1	1	0	1			
Total	87	87	186	273	18,003,116	12,921,211	11,122,186

HALF-YEARLY PRODUCTION OF CHARCOAL PIG IRON BY STATES.*

Tennessee	1	0	1	1			
Mississippi	0	0	1	1	52,232	44,348	43,203
Michigan	2	1	3	4			
Total	3	1	5	6	52,232	44,348	43,203

HALF-YEARLY PRODUCTION OF ALL KINDS OF FERRO-ALLOYS BY STATES.†

New York	0	0	1	1			
New Jersey	0	0	0	0	110,622	92,000	50,681
Pennsylvania	3	2	9	11	197,733	139,535	114,348
Virginia	1	0	1	1			
West Virginia	0	0	0	0			
Tennessee	1	0	2	2	28,658	14,222	43,531
Alabama	0	1	0	1			
Ohio	2	2	0	2			
Illinois	0	0	0	0			
Iowa	0	0	0	0	78,249	70,243	59,828
Colorado	0	0	0	0			
Total	7	‡5	13	‖18	415,262	316,000	268,388

HALF-YEARLY PRODUCTION OF PIG IRON AND FERRO-ALLOYS ACCORDING TO FUEL USED.

Coke pig iron	87	87	186	273	18,003,116	12,921,211	11,122,186
Charcoal pig iron	3	1	5	6	52,232	44,348	43,203
Total pig iron	90	88	191	279	18,055,348	12,965,559	11,165,389
Total ferro-alloys	7	5	13	18	†415,262	†316,000	†268,388
Grand total	97	93	204	297	18,470,610	13,281,559	11,433,777

* Does not include the production of ferro-manganese, spiegeleisen, ferro-silicon, or other ferro-alloys.

† Includes ferro-manganese, spiegeleisen, ferro-silicon, and other ferro-alloys made in blast furnaces or in electric furnaces.

‡ During the first half of 1931 there were 10 blast furnaces which made ferro-alloys only or ferro-alloys and pig iron.

‖ Blast furnaces only; electric furnaces not included.

HALF-YEARLY PRODUCTION OF BASIC PIG IRON.

States.	First half of 1930.	Second half of 1930.	First half of 1931.
Massachusetts, New York	522,013	325,511	269,784
Pennsylvania—Allegheny County	1,817,825	1,418,478	1,060,158
" Other counties	1,947,841	1,347,553	1,090,156
Maryland, West Va., Kentucky, Ala.	1,382,446	908,728	1,055,303
Ohio	1,979,417	1,501,682	1,385,619
Indiana, Illinois	2,683,594	1,633,091	1,403,753
Michigan, Minnesota, Colorado, Utah	506,901	418,304	386,692
Total Gross tons.	10,840,037	7,553,347	6,651,475

HALF-YEARLY PRODUCTION OF BESSEMER AND LOW-PHOSPHORUS PIG IRON.

Pennsylvania	1,635,067	1,274,939	1,064,928
New York, Md., W. Va., Alabama	421,139	311,378	234,258
Ohio	1,349,565	918,350	820,233
Indiana, Illinois	777,009	627,302	573,799
Total Gross tons.	4,182,780	3,131,969	2,693,218
Including low-phosphorus pig iron	116,716	46,952	31,767

HALF-YEARLY PRODUCTION OF FOUNDRY PIG IRON.

Massachusetts, New York	434,005	200,636	156,570
Pennsylvania	244,894	157,580	107,573
Maryland, Virginia, Kentucky, Tenn	57,923	58,801	30,640
Alabama	653,294	686,979	538,678
Ohio	254,213	195,231	89,002
Indiana, Illinois	156,593	151,591	182,139
Michigan, Minnesota, Colorado, Utah	169,579	201,460	141,040
Total Gross tons.	1,970,501	1,652,278	1,245,642

HALF-YEARLY PRODUCTION OF MALLEABLE PIG IRON.

Massachusetts, New York	162,327	155,128	99,241
Pennsylvania	53,852	22,197	
Ohio	337,182	140,532	198,318
Indiana, Illinois, Michigan, Minn.	431,253	269,041	220,052
Total Gross tons.	984,614	586,898	517,611

HALF-YEARLY PRODUCTION OF FORGE PIG IRON.

Pennsylvania, Virginia, Alabama, Ohio	28,838	21,858	33,105
Total Gross tons.	28,838	21,858	33,105

HALF-YEARLY PRODUCTION OF MISCELLANEOUS GRADES OF PIG IRON AND DIRECT CASTINGS.

New York, Pennsylvania	2,036	1,403	1,002
Maryland, Alabama, West Virginia	24,416	3,292	11,624
Ohio	6,410	4,664	2,433
Indiana, Illinois, Michigan, Minn.	15,716	9,850	9,279
Total Gross tons.	48,578	19,209	24,338

HALF-YEARLY PRODUCTION OF FERRO-ALLOYS BY KINDS.

Ferro-manganese and spiegeleisen	210,138	152,248	144,728
Ferro-silicon	186,883	150,757	108,263
Ferro-phos. and all other ferro-alloys	18,241	12,995	15,397
Total Gross tons.	415,262	316,000	268,388

PIG IRON AND FERRO-ALLOYS MADE FOR SALE OR FOR USE OF MAKERS IN THE FIRST SIX MONTHS OF 1931.

Pig iron and ferro-alloys.	For sale.	For maker's use.	Total. Gross tons.
Pig iron:			
Basic	738,270	5,913,205	6,651,475
Bessemer and low-phosphorus	86,262	2,606,956	2,693,218
Foundry	1,024,662	220,980	1,245,642
Malleable	404,517	113,094	517,611
Forge or mill	33,105		33,105
White and mottled, direct castings, etc.	17,625	6,713	24,338
Total pig iron Gross tons.	2,304,441	8,860,948	11,165,389
Ferro-alloys:			
Ferro-manganese and spiegeleisen	87,891	56,837	144,728
Ferro-silicon	108,263		108,263
All other ferro-alloys	15,363	34	15,397
Total ferro-alloys Gross tons.	211,517	56,871	268,388
Total pig iron and ferro-alloys Gross tons.	2,515,958	8,917,819	11,433,777

Industrial Men in the Day's News

Dr. John F. Thompson, Vice President, International Nickel Co. of Canada Ltd.

FILLING numerous positions during the past 25 years, he has spent his entire business career with the one interest.

AFTER three years affiliation with Prof. Henry M. Howe, in 1906 he became research metallurgist and by successive promotions has risen to the vice presidency.

TECHNICAL father of monel metal, he has paid much attention to its development, application and fabrication.

HIS entire business life spent in the service of one company, Dr. John F. Thompson recently was made vice president of International Nickel Co. of Canada Ltd., Copper Cliff, Ont., subsidiary of International Nickel Co., New York, producer of nickel for making nickel chrome and other nickel alloy steels. Only once in 25 years has he had to reorder an old form of business card. This marks the great number of positions he has occupied with the company, each a step higher in the organization, rising from research metallurgist to the vice presidency. Since 1928 he has been assistant to the president.

Dr. Thompson is the technical father of monel metal. He was the technical man associated with its original development, from a metallurgical and commercial standpoint. This natural alloy of copper and nickel had been discovered just prior to Dr. Thompson's first identification with the company in 1906 and it had been named for a former president of the company. It had not been developed commercially nor were its physical properties then known even to the International company. Production was by rule of thumb and while conceded to have unusual qualities, practically nothing was known of its possibilities, specific applications or fabrication methods.

Graduating as a chemist from the school of mines, Columbia university, in 1903, Dr. Thompson became assistant to Prof. Henry M. Howe, noted metallurgist. Professor Howe had built the International company's Oxford works in New Jersey in 1879. After three years teaching and research, Dr. Thompson was awarded his doctor's degree and was employed by International Nickel Co. as research metallurgist to develop and conduct a research laboratory on monel metal at Oxford, N. J. At that time Robert C. Stanley, now president, was assistant superintendent there. Dr. Thompson soon was placed in charge of all monel metal manufacturing operations and research. Since the company then had no rolling mill such work was sublet to various steel mills. The year 1908 he spent at Vandergrift, Pa., in the American Sheet & Tin Plate Co.'s mill in charge of rolling monel sheets. Other steel mills were visited to develop monel wire, plates, etc. In those days he not only would superintend the rolling but would also visit stamping and other fabricating plants to supervise the manufacture of completed articles.

In 1918 he was made manager of the technical department, International Nickel Co., New York. Four years later, when its rolling mill was built at Huntington, W. Va., he was placed in charge and was manager of the operating department in the United States until 1928. In that year he was made assistant to the president of the Canadian subsidiary and now is vice president.

For many years Dr. Thompson also has been associated with the commercial side of this metal as an officer of the former Metal Products Corp., Bayonne, N. J., and of Whitehead Metal Products Co., New York, N. Y.

He resides in Brooklyn, N. Y., in winter and at New Canaan, Conn., in summer. He is a member of the Mining and Metallurgical Society of America, American Iron and Steel institute, American Institute of Mining and Metallurgical Engineers and numerous clubs.

LAWRENCE S. HAMAKER, who has been advertising manager of the Republic Steel Corp., Youngstown, O., was appointed manager of sales promotion, effective Aug. 1, with headquarters at Youngstown. For the present he also retains the position of advertising manager.

Mr. Hamaker, who was born at Canton, O., June 20, 1896, received his education in the Canton public schools. Entering the sales department of the Berger Mfg. Co. at Canton, he afterward was connected with its advertising department. When the Berger company was merged with the United Alloy Steel Corp. he became advertising manager of the merged companies. Similarly, when United Alloy and Central Steel Co. combined to form the Central Alloy

Steel Corp., he continued as advertising manager, and when the Republic Steel Corp. was organized late in 1929 he went with Central Alloy into Republic.

□ □ □

Maxfield Pease has resigned from Dravo-Doyle Co., Pittsburgh, to become identified with Automatic Cone Valve Co., Chicago.

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F. Hugh Morehead, chief engineer, Walworth Mfg. Co., Boston, was recently elected vice president in charge of engineering.

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George C. McCormick, chief engineer of the General Alloys Co., Boston and Champaign, Ill., has been elected a vice president.

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Samuel D. Fitzsimmons, for many years plant engineer, Brown & Sharpe Mfg. Co., Providence, R. I., is now vice president of the Narragansett Electric Co., Providence.

□ □ □

Leo H. Marks on July 27 was elected president of Federal Steel Corp., Detroit, to succeed the late Harry J. Marks, whose death was noted in STEEL of July 16.

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William W. West, for the past ten years general superintendent, Elyria, O., division of Steel & Tubes Inc., Cleveland, and formerly superintendent of mills and roll shop, has resigned.

□ □ □

F. E. Clark, of H. A. Brassert & Co., blast furnace, steel plant and mill engineers and constructors, Chicago, returned to New York, July 20, following a visit of 11 months in England, where the company maintains offices at London.

□ □ □

John J. Stanton, merchandise manager, northwest district, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has been appointed Milwaukee manager, covering Wisconsin and the upper peninsula of Michigan. Mr. Stanton has been with the Westinghouse company since 1916.

□ □ □

Donald J. Dalton, president; E. N. Roth, vice president; A. E. Morgan, treasurer; Theodore C. Fraser, secretary; and A. D. Bruce were recently re-elected directors of Dalton Foundries Inc., Warsaw, Ind. Other officers are: A. F. Morgan, general manager and Clarke S. Brenneman, assistant secretary.

□ □ □

Leslie C. Haswell, for 24 years purchasing agent for the Chapman Valve Co., Indian Orchard, Mass., has resigned. Frank E. Phillips has been promoted to purchasing agent and Harold F. Wood has been named personnel manager, succeeding E. Edward Armstrong, whose resignation became effective Aug. 1. John J. Duggan, treasurer of the company, it is believed, will assume executive control of the purchasing department, with Mr. Phillips in active charge of purchasing details.

□ □ □

William Vogt and Chester A. Porter sailed July 7 for soviet Russia to join the engineering organization at Kuznetsk maintained by Freyn Engineering Co., Chicago.

Ralph Vaill, J. S. Ferguson, C. C. Boucher, George T. Chapman, Herman F. Reinke, Bruce E. Tau and James C. Thomson, of that company, sailed July 18 for the same destination.

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A. H. Landwehr, president, Holland Furnace Co., Holland, Mich., furnace and heating equipment, has been elected chairman of the board to succeed the late C. M. McLean. Mr. Landwehr

Lawrence S. Hamaker

is succeeded by his brother, C. H. Landwehr, formerly vice president and general manager. E. G. Landwehr has been elected first vice president, and J. P. Kolla, second vice president.

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Frank J. Baumis, who resigned in November, 1928, as vice president and director of Manning, Maxwell & Moore Inc., New York, and president of Shaw Crane-Putnam Machine Co. Inc., to become affiliated with Ingersoll-Rand Co., New York, has organized the F. J. Baumis Co., with offices in New York and Boston. It will specialize in highway equipment for railroads and affiliates, representing the Warford Highway Transportation Co. and other lines. While with Ingersoll-Rand Mr. Baumis did considerable development work in connection with its oil-electric locomotive.

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Rex L. Alexander, of the Olympic Steel Works, Seattle, was elected president of the Washington Foundrymen's club, July 14, succeeding J. P. Jensen, of the Prescott Co., Seattle. D. Olson, Atlas Foundry & Machine Co., Tacoma, Wash., was made vice president; Frank Jensen, Star Foundry Co., Seattle, treasurer; and E. C. Gustin, Western Foundry Sand Co., Seattle, secretary.

Trustees include Mr. Jensen, James K. Paul, Troyer Fox Co., Seattle; Lawrence Schorie, Pacific Foundry Co., Tacoma, and Earl Mackie, Washington Stove Works, Everett, Wash. The incoming president is chairman of the trustees.

Obituaries

HARRY A. BROWN, former vice president of Crucible Steel Co. of America, Pittsburgh, died July 25 in West Orange, N. J. He was Philadelphia manager for the Crucible company from its organization in 1901 until he became its vice president and removed to New York in 1910. He was born in Huntington, Pa., and had resided for the past 20 years in Philadelphia.

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Henry Niemann, member of the board of directors, Enterprise Foundry Co., San Francisco, died June 23.

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Elmer E. Aring, 38, purchasing agent for the past 15 years for Foote-Burt Co., Cleveland, machinery manufacturer, died there July 27. He had served as a director and secretary of the Purchasing Agents Association of Cleveland Inc. in 1928 and 1929.

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William H. Perry Jr., 60, manager of Hartford, Conn., offices of Perry, Buxton, Doane Co., Boston, scrap iron and steel broker, died July 18. He had been associated with his father in William H. Perry Co., but when that interest merged with E. Buxton & Son Co., and George B. Doane & Son Co., in 1911, he took charge of the Hartford office.

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Albert L. Jones, 65, superintendent since 1919 of Canadian Bridge Co. Ltd., Walkerville, Ont., whose death was briefly noted in STEEL of July 30, was born in England but early located in the United States. For 45 years he had been with companies now comprising United States Steel Corp., including Pencoyd, Pa., Elmira, N. Y., and Ambridge, Pa., plants of American Bridge Co. He became assistant superintendent of Canadian Bridge Co. in 1911 and eight years later was advanced to the superintendency.

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George J. Slining, 74, manager of

(*Concluded on Page 67*)

Here and There in Industry

CANONSBURG STEEL & IRON WORKS, Canonsburg, Pa., and A. M. Byers Co., Pittsburgh, producer of wrought iron and wrought iron products, are negotiating for sale of the former to the latter. The Canonsburg plant includes six black sheet mills and five single stands of cold rolls and would provide facilities for the production of wrought iron sheets. Its current capacity is 38,000 tons of black sheets and 16,000 tons of galvanized sheets annually.

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Mosher Steel & Machinery Co., Dallas, Tex., has erected a branch fabricating plant at Tyler, Tex., to serve the East Texas oil field area in reinforcing and structural steel.

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Yoder Co., Cleveland, has appointed the Harry G. Mastson Co., 5229 Kimball avenue, Chicago, its sales representative in Chicago and vicinity.

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Woodings Forge & Tool Co., Verona, Pa., has consolidated with the Verona Tool Works. The new organization will be known as the Woodings-Verona Tool Works, with E. Woodings as executive head.

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Ex-Cell-O Aircraft & Tool Corp., Detroit, has appointed Erskine & Rosche Co., Minneapolis, its representative to handle its complete line. W. H. Erskine is director of sales for the organization.

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American Manganese Steel Co., Chicago, is said to be negotiating with the city of Montreal, Que., for establishment of a foundry and steel plant on the bank of the St. Lawrence river in that city.

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Maytag Co., Newton, Iowa, manufacturer of washing machines, has formed the Maytag Co. Ltd., in Canada, and will establish a branch at Toronto, Ont. This will be devoted to assembling and later it is planned to manufacture and complete machines there.

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Despatch Oven Co., Minneapolis, is expanding its sales and engineering departments to afford additional service to users of industrial ovens and equipment. Jones & Manter Corp., 120 High street, Boston, has been made district sales representative for New England, except western Connecticut. F. C. Butman has been reappointed district manager for western New York after his return from a leave of absence. E. B. Wolfe has been added to the company's Detroit office to assist in sales in eastern Michigan and northwestern Ohio.

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Sullivan Machinery Co., 400 North Michigan avenue, Chicago, compressors, drills and mining machinery, has moved its New England sales office from 45 Milk street to 100-102 Brookline avenue, Boston. In the new location, ample warehouse facilities are provided. Edwin T. Hall is manager.

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Otis Steel Co., Cleveland, has completed installation of a hot bed for its 20-inch strip mill department, with specially designed flying shears and piler. Progress is being made on construction of the new 72-inch continuous strip mill, which is expected to be in operation late this year.

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Simplex Tool Co., Woonsocket, R. I., has been taken over by the Simplex Corp. The latter will specialize on the manufacture of steel slide vises, including machinists', coachmakers', combination pipe, production foot-operated vises and a utility line of home and garage vises. The personnel of the new company is the same as the old and it will operate the same plant.

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Gardiner Metal Co., 1366 West Lake street, Chicago, lead products and other metals, has leased for a long term industrial property on West Forty-eighth place, containing 24,000 square feet, improved with a 3-story and 1-story building served by the Indiana Harbor Belt Line railroad. The Gardiner company expects to use this property for expansion as needs require.

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Allen-Bradley Co., Milwaukee, manufacturing rheostats and other electrical goods and radio parts, reengaged nearly 500 former employes during July. Increased activity is due to orders from large radio manufacturers who are starting production for fall business. Radio concerns have placed orders for more than 1,000,000 resistance units in the last two to three weeks.

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Stedman's Foundry & Machine Works, Aurora, Ind., which recently added to its line of products, including swing and ring hammer crushers, grinders, pulverizers and shredders, has opened several new offices in important centers. Goggin & Mills have been appointed sales representatives in Chicago, with offices at 407 South Dearborn street; Louis Mardaga, 710 Park building, has been made representative at Pittsburgh; J. Y. Riffe, 811 Peoples Bank building, at Charleston, W. Va.; S. D. Calloway, 3029 Roanoke road, Kansas City, Mo.; and Brown Fraser & Co. Ltd., 1150 Homer street, Vancouver, B. C.

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General Electric Co. plant at Pittsfield, Mass., has booked an order for $1,000,000 of equipment for the Commonwealth Edison Co., Chicago, and the Super Power Co. of Illinois, Powerton, Ill. The transformers will be the largest ever built at the Pittsfield plant. Work will start on this order Aug. 17. Eight of the units are so large that special drop-frame transformer cars will be built to ship them. They are to be used at either end of a 220,000-volt transmission line 100 miles long from Powerton to the Crawford avenue station of the Commonwealth Edison Co. in Chicago.

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Chain Belt Co., Milwaukee, is completing an addition to its construction equipment plant at its West Milwaukee works. It is designed for engineering, testing and experimental work, 89 x 104 feet, one story, with a high-bay and a low-bay section, the former equipped with a crane. The West Milwaukee works now consists of a malleable iron foundry, conveyor manufacturing plant, annealing room, furnace room, core room, engineering building, cafeteria and power plants. Main offices and other plants are on the Sixteenth street viaduct, Milwaukee. The company also owns and operates the Stearns Conveyor Co., Cleveland, manufacturer of belt conveyor equipment.

Consider Gas Pipe Line in Three Rivers-Quebec Area

A project whereby some 390 miles of pipe line may be required in Canada is noted in the recent acquisition by four American corporations of 2,000,000 acres of gas lands in and around the Three Rivers district, about 87 miles from Quebec, Que. Cities Service Co., Hope Engineering Co., Mexican Seaboard Oil Co., and the Amerada Corp. are the companies. If the project reaches the stage where pipe lines are laid to the various towns included in the plan, it will be necessary to lay more than 200 miles of lines to Ottawa, 100 to Montreal and about 90 miles to Quebec.

MIRRORS of MOTORDOM

DETROIT

ONCE more Detroit is in the process of writing off a month before it has scarcely started, and of transferring its hopes for improvement to the succeeding month. By common consent, August is appraised as the low month of the summer in point of automobile production, but a rise in September, possibly even late in August, is a rather general expectation.

For one thing, vacation shutdowns are taking a heavy toll of production this month, but retail sales are expected to be maintained, obviously resulting in reduced inventories of new cars as August wears on.

Output of passenger cars and trucks in the last week of July approximated 56,000 units, a decline of about 2500 units from the preceding week but fully 30,000 units greater than in the corresponding week of 1930. Compared with 1929, last week's production was about one half.

Weekly Output Under

For the current week, considering that Ford is tapering fast in actual production although maintaining assembly at a moderate rate, production probably will fall below 50,000 units and a further decline is to be expected the succeeding week. Releases for steel and other raw materials, normally received several weeks in advance of their appearance as parts, indicate this trend.

Ford, still on a 3-day week so far as the manufacturing operations still pursued are concerned, has lowered its daily rate from about 5000 units to 4700-4800 units. For all practical manufacturing purposes, Ford will shortly be down, and there are numerous signs that the cars assembled after the present stock of parts at various assembly plants has been worked off will be materially changed.

Operations at Chevrolet plants continue variable, departments operating from 3 to 5 days a week but with total output still close to 20,000 units per week. Chevrolet reports its new car inventories as about normal, with a decrease in used car stocks. In many Michigan cities a shortage of used cars of all makes is reported, and used car lots are much more thinly covered than normal at this season.

A Free-Wheeling Buick?

Willys-Overland, which is now offering wire wheels as standard equipment on its Willys Six, continues to assemble about 1550 units weekly, a slight gain over the comparable week of 1930. Other large scale producers holding their operating rates virtually unchanged, are Hudson-Essex at 1750 units weekly, Nash at 2300, Studebaker at 1500 and Buick at 1200. Though Buick officials insist the present models will be continued through December, reports persist that a free-wheeling Buick will be available Oct. 1. Buick is doing considerable retooling.

Chrysler as a group is fluctuating widely. Plymouth, still under the impetus of its new model, is operating 6 full working days a week and has pushed the daily rate above 1200 units. Dodge, on the other hand, now offering three new deluxe models, has tapered off from 2700 units weekly to 1400. DeSoto has dropped off from 1200 units weekly to 1750, while Chysler proper has declined from 1100 units to 800.

Cadillac-LaSalle, which has been down for vacation, resumed this week with a schedule of 40 units daily, 4 days. Olds, which also has been closed, is back this week with a daily scedule of 250 cars, 4 days. Oakland-Pontiac continues down.

Peerless, which is planning to concentrate on 12 and 16-cylinder models featuring aluminum parts wherever possible, is also considered out of production.

Other weekly production rates are Auburn-Cord 600, Graham 425, Hupp 300, Reo 525, Packard 425, Lincoln 110, Marmon 125, Durant 225, Pierce Arrow 100, Franklin 150. In general, these rates are unchanged from the preceding week.

There still are expectations of a radical change in Packard design at the January, 1932, shows.

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Practically one-fifth of all the cylinder heads now manufactured by Ford are of the high-compression type. Demands of police departments for faster acceleration and higher top speed led to Ford's large scale manufacture of special heads. It will be recalled that when Model A first was introduced a high top speed was incorporated, higher than the existing level today in Model A.

The new high-compression head operates at compression pressure of 119 pounds per square inch, compared with about 81 pounds per square inch for the standard head. It is now available to the public on new cars and at a recent date was being manufactured at the rate of 700 units a day.

One for Every 4.59

World registration of all classes of motor vehicles totaled 35,805,632 of which 26,697,398 were registered in the United States, according to a world census as of Jan. 1, 1931, by the department of commerce.

The census reveals a per capita registration of one motor vehicle for every 54 persons in the world. United States is credited with one registration for every 4.59 persons, against one for every 200 persons resident in all foreign countries.

EDITORIAL

Distributing Reductions in Income Equitably

IF THE attitude of business toward wages were the same in this depression as it was in the postwar slump in 1921-1922, every day-rate worker would have suffered severe wage cuts soon after the recession began in 1929. The fact that many employers have tried to avoid reductions in hourly rates is indicative of an enlightened viewpoint which goes much deeper than the Washington administration's exhortations to maintain wages.

In 1921 industry resorted to wage cutting as one of the first measures of economy. In 1930 to every industrial executive who reduced wages before attempting savings in other directions there were hundreds who stood firm on wage rates. Had the depression ended in the fall of 1930—as many observers had expected—the action of the great majority of employers in maintaining rates would have been hailed as a great achievement.

But dull business has continued longer than anyone expected and many of those who were loudest in their desire to keep hourly rates at the existing levels have been hard pressed to live up to their words. In fact some of the advocates of maintained wages have been forced to abandon their theory in order to continue in business. Notwithstanding this backsliding by a fair number of companies, the attitude of the majority still is that wages should be maintained as long as possible and that reductions should be made only after every other expedient has been tried.

Clean House and Cut Dividends and Salaries Before Reducing Wages

This policy has been accepted as sound by an impressive number of outstanding industrial leaders. Out of it has grown a formula for effecting economies which is radically different from anything used under similar circumstances in the past. This formula provides that the first step in economy should be the elimination of unnecessary waste in operations, sales and distribution—a thorough housecleaning to cut out needless expense. The second step is reduction of common dividends; the third, reduction of salaries; and fourth—to be used as a last resort—reduction of wages.

In many establishments this procedure effects economies as great or greater than would accrue from a reversal of the order. From the standpoint of the public at large the formula has the advantage of inflicting the greatest monetary sacrifice on those best able to bear it and of sparing as much as possible those unfortunates who are at the lower end of the income scale.

Flexibility in Adjustments Affords Fair Distribution of Sacrifices

This point will be emphasized during the approaching winter when at best millions will be without work or on part time schedules. The more industry has to reduce wage payments to these workers, the greater will be their demands on community funds and other forms of public charity. In certain localities the problem resolves itself into a question of whether industry is going to pay a certain amount in wages or whether it will contribute large sums to local charities for relief.

While agreeing with the principle of sparing the unfortunate wage earners, we believe the line of demarcation which results from classifying workers in the "salary" and "wage" classes is unfair. Certain low-salaried clerks are in circumstances probably no better than those of hourly rate workers, yet their incomes are slashed along with those of high-salaried officers. Likewise there are certain "aristocrats" in the ranks of labor who are well able to take their cuts along with salaried employes. As long as industry has adopted a policy dictated by humanitarian considerations, it should make every effort to apply it fairly.

Apparently this is the motive behind U. S. Steel's plan of salary adjustment. It is understood that salaries ranging from $1800 to $5000 will be reduced 10 per cent; those from $5000 to $10,000 will be cut 12½ per cent and those above $10,000 will be subject to a 15 per cent slash. Considering the common stock holdings of this group, it is apparent that the largest sacrifices are levied on those who have had the largest share of good fortune in the past.

While the Steel corporation's plan may not be workable in many companies, its flexibility is a feature worthy of consideration—especially by companies desiring to distribute enforced hardships as equitably as possible.

THE BUSINESS TREND

1931	
June	$4,449,293
May	4,182,732
April	5,135,499
Mar.	7,190,877
Feb.	6,155,548
Jan.	6,118,411

1930	
June	$14,376,931
May	16,570,790
April	16,113,583
Mar.	18,103,628
Feb.	16,107,410
Jan.	15,404,359

Business Sees Bright Side Of Poor Reports

EVEN though the rank and file of American business knew in advance that second-quarter earnings of industry would be extremely disappointing, observers were not quite prepared for the action taken by the United States Steel Corp. at its meeting last week. The reduction in dividend rate, the low point to which profits had receded and the recommendation on salary adjustments momentarily stunned even those who had been looking for a gloomy report. But after the first shock had subsided, business began to see U. S. Steel's decision in a more favorable light. Today the majority of industrial executives agree that the corporation directors acted wisely, and to the best interests of all concerned.

This philosophical view is prompted by the realization that it is better to expose all of the bad news as it develops than to attempt to hide the severity of present conditions. Had the directors continued the $7 dividend rate, their act would have been interpreted as evidence that the directors do not consider the situation serious. In reducing the rate, they served notice that business is undeniably bad. The sobering effect of their act will do much more to hasten recovery than a more optimistic report would have done.

Another Foreign Problem Is Cleared; Hints of Accumulating Demand Appear

The crop of earnings statements released last week served to shift attention from foreign financial problems to domestic matters, but not before the French and American assistance to the Bank of England had cleared another weak spot in the international credit situation.

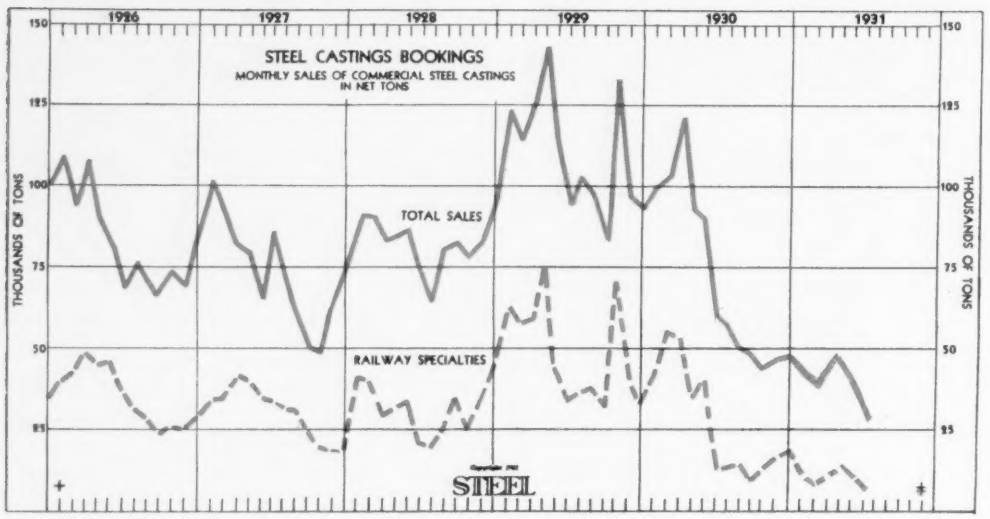
At home there are faint signs that a small current of diversified demand is accumulating which may develop into fair proportions in a month or two. While it is possible that the small increase of 2 per cent in steelworks operations last week was sporadic, it is more likely that it means 30 per cent is about the minimum rate with which the country's barest requirements can be satisfied. If this is true, we can expect to see the ingot rate bounding up and down from a floor of 30 per cent until the seasonal demand in the fall carries it higher.

Public Construction, After Delays, Will Aid in Volume of Work

One favorable factor which has not received much attention is the larger volume of work involved in public projects which will get under way in the last half of the year. Much of this construction was authorized last winter as a step in relieving unemployment. Official red tape, litigation and procrastination in making plans delayed much of the work. Therefore, this bungling—which at the time appeared unfortunate—really has had the effect of postponing many projects to a time when their influence on employment will be most beneficial.

Price trends still are downward, although the tendency is not as clearly defined as in the last period of decline. In other words, the last threatened stand against continued reductions came nearer to success than any of the earlier attempts.

STEEL's composite of 14 steel and iron products last week advanced 8 cents to $31.06; the finished steel composite advanced from $48.52 to $48.72 and the steelworks scrap composite remained at $8.87. In the main steel prices have held their ground firmly for a month or more.



Total New Bookings

	Tons
June, 1931	26,041
May, 1931	39,052
June, 1930	61,164

Railway Specialties

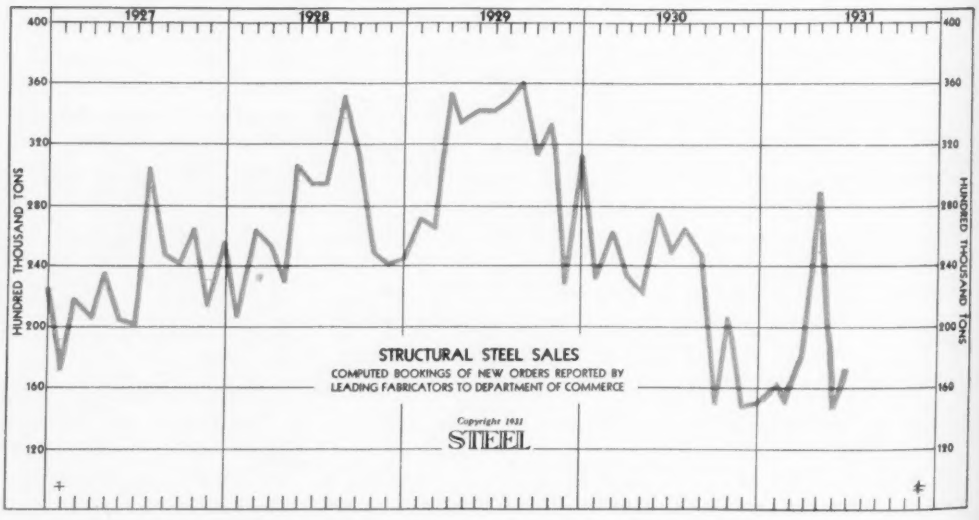
	Tons
June, 1931	7,597
May, 1931	11,306
June, 1930	13,714

Production and Bookings of Steel Castings Establish New Lows in June

A complete set of new lows was established in June production and bookings of commercial steel castings. In bookings, the total dropped to 26,041 tons or 17.9 per cent of capacity compared with 39,052 tons or 26.8 per cent in May, the previous low. Orders for railway specialties declined to 7597 tons or 11.3 per cent compared with 11,306 tons or 16.8 per cent in May and 9,136 tons or 13.6 per cent in February, the previous low. From 27,746 tons or 35.4 per cent in May, bookings of miscellaneous castings fell to 18,444 tons or 23.6 per cent in June. Production figures in all classes were above bookings, the total falling from 29.6 per cent in the previous month to 24 per cent.

June Structural Orders Rise From Low of Previous Month

Orders received by structural steel fabricators in June recovered from their May low to reach 177,200 tons or 44.3 per cent of capacity, an advance of 15.3 per cent from May. A year ago bookings were for 253,600 tons and two years ago, 324,170 tons. With the exception of the unusually high total of April, fabricators' sales have been well under 200,000 tons per month thus far in 1931. Aggregate order tonnage for the first half of the year was 1,128,000 tons, the ratio of orders to capacity being 47 per cent, compared with 62.5 per cent in the first six months of 1930. June shipments increased from 148,000 tons to 162,000 tons, the second best of the year to date, but remained under bookings.



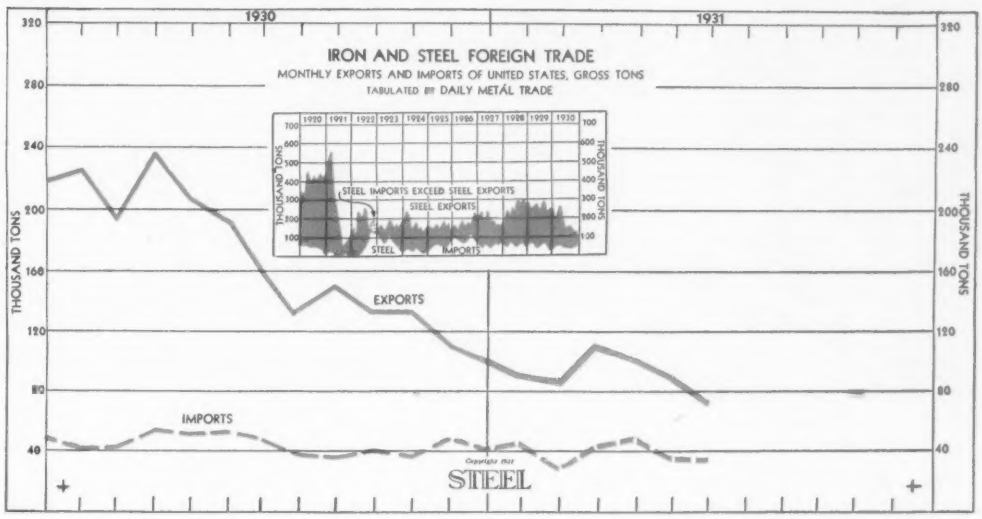
	Tons	
	1931	1930
June	177,200	253,600
May	152,800	279,200
April	292,800	222,800
March	184,400	236,800
February	158,400	267,600

Exports

	Tons
June, 1931	75,585
May, 1931	91,407
June, 1930	159,273

Imports

June, 1931	37,819
May, 1931	37,176
June, 1930	48,953

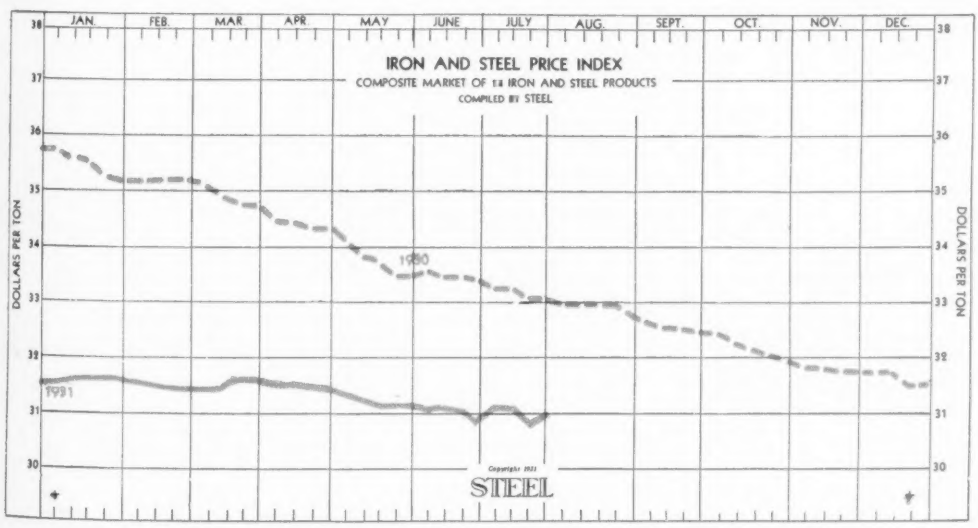


Iron and Steel Exports Decline 17 Per Cent; Imports Hold

June exports of iron and steel products dipped to a new low at 75,585 tons, while imports held steady at 37,819 tons. The decline of exports amounted to 17.3 per cent compared with the previous month and 52.5 per cent compared with the export total of 159,273 tons in June a year ago. Imports were 643 tons higher than the May aggregate, but were 22.7 per cent below the shipments of June, 1930. For the half year, exports declined from 1,222,622 tons to 561,542 tons, only three of the 46 classes of products escaping reductions. Imports in six months of 1931 were 232,034 tons, compared with a total of 300,522 tons in the first six months of last year.

Index of Iron and Steel Products Registers Small Price Gain

STEEL's index of iron and steel prices in the final week of July made a small gain. From $30.98 in the two previous weeks, the lowest point of the decline, it advanced eight cents to $31.06. There have been but three upward movements thus far in 1931, in the middle of March, the beginning of July and at the end of July. The influence of the finished steel composite, which gained 20 cents on revisions in wire nails to reach $48.72, was responsible for the latest gain in the iron and steel composite. STEEL's scrap composite, opening the month with a gain to $8.50, advanced steadily to $8.87, holding at that figure in the final week of the past month.

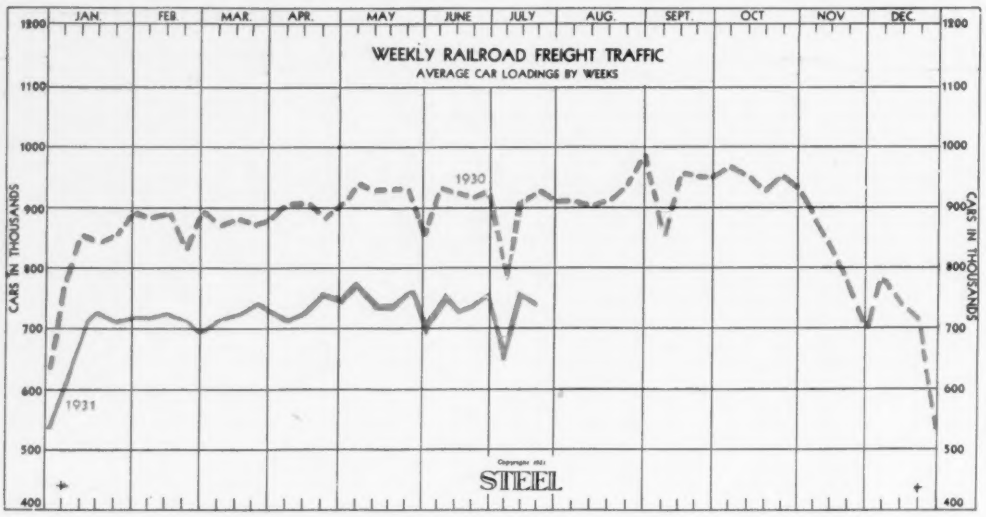


Weekly Figures

July 29	$31.06
July 22	30.98
July 15	30.98
July 8	31.11

Monthly Averages

July	$31.05
June	31.02
May	31.37
April	31.59



	1931	1930
July 18	757,555	928,271
July 11	763,581	915,985
July 4	667,879	792,053
June 27	759,290	936,690
June 20	739,116	920,645

Freight Car Loadings Experience Setback, Fall Further below 1930 Totals

Revenue freight car loadings experienced a small decline following the recovery from holiday activity. Cars loaded in the week ended July 18 were 757,555 compared with 763,581 in the previous week and 667,879 in the holiday week. While the seasonal drop in the first week was less, relatively, than that of a year ago, the margin between last year's and this year's loadings increased in the two following weeks. In the first week of the month 125,174 fewer cars were loaded, compared with the 1930 week. In the second period 152,404 fewer cars and in the third week, 171,716 fewer cars were loaded. To July 18, the 1931 total was 21,168,999 cars, down 4,667,886 cars from the like period of a year ago.

Total Production of Cars and Trucks Drops to 256,297 in June

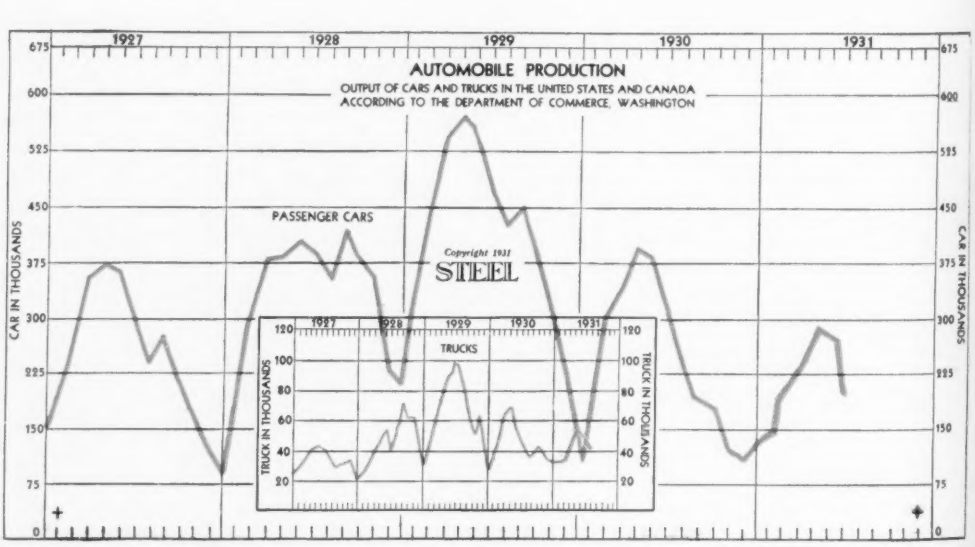
Output of passenger cars in the United States was 208,158 units, in Canada 5538 units, for a June total of 213,741 compared with American production of 269,420 units, Canadian production of 10,621 units and a total of 280,041 in May. American truck output was down from 45,695 to 41,304 and Canadian truck output dropped from 2117 to 1252 units. The aggregate for June was 256,297 cars, compared with 327,853 in May and 349,596 in June, 1930. In the first half of 1931 the United States produced 1,313,251 passenger cars and 255,227 trucks compared with 1,864,989 passenger cars and 333,591 trucks in six months of 1930. Canada's output in the first half of this year was 66,092 units compared with 110,685 units.

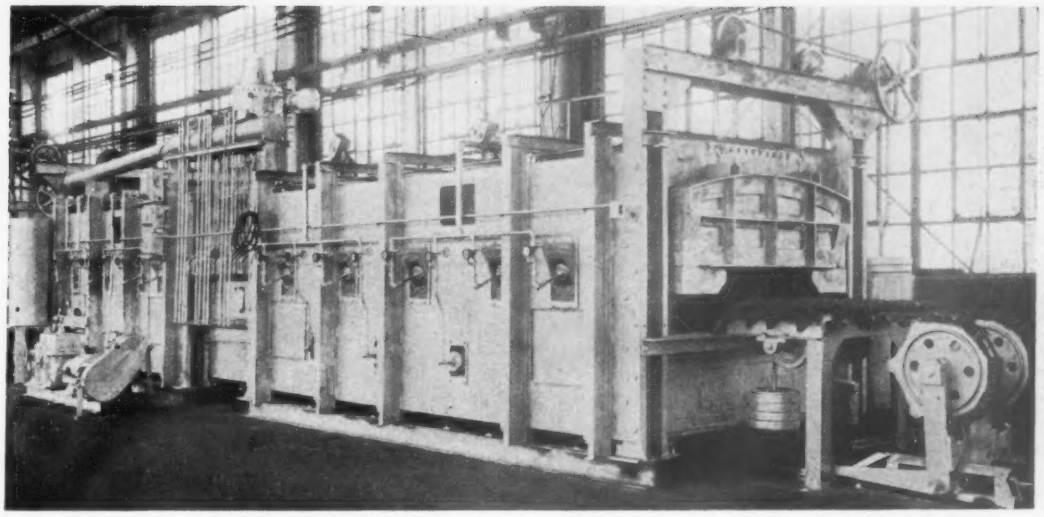
Passenger Cars

	1931	1930
June	213,741	298,140
May	280,041	541,310
April	299,736	393,804
March	241,727	350,559

Trucks

	1931	1930
June	42,556	51,466
May	47,812	94,940
April	53,131	74,477
March	46,671	66,559



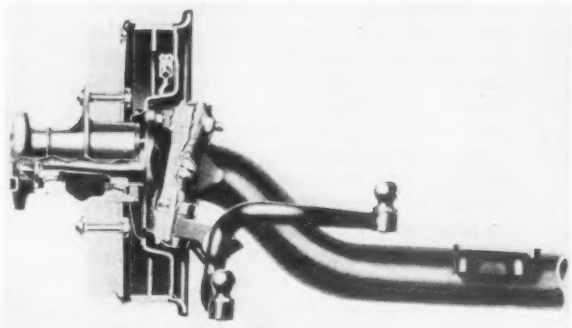


CHARGE end of combination normalizing and hardening furnace, showing tubular axles on conveyor entering furnace. A central zone of the furnace is water cooled to bring temperature of the axles below the critical point, preparatory to heating for quenching

Special Equipment Designed for Heat Treating Tubular Axles

BY I. W. SPRINK
Chief Engineer, Logan Gear Co., Toledo, O.

THE automotive industry has been responsible to a marked degree for the specialized development of many innovations in continuous heat treating processes and methods. Heat treating requirements have progressed step by step with constant changes in design, the demand for more speed, dependability, and precision in today's automobiles.



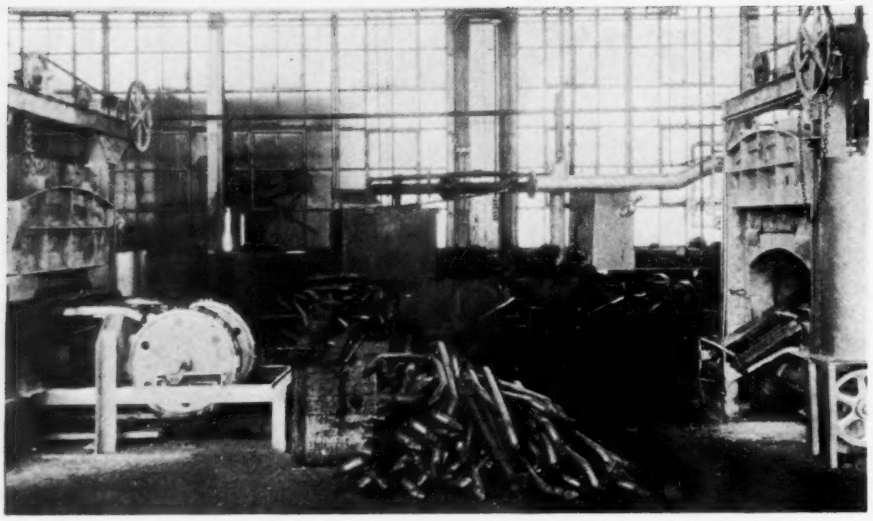
Details of assembly of tubular front axle to wheel hub which is sectioned to show mounting method

One of the most interesting of recent developments is the reverse Elliot-type tubular front axle. Before this axle could be made on a production basis it became necessary to design and develop new and special apparatus, chief of which was that used in heat treating. Control of furnace atmosphere during heat treating operations had to be close enough to permit the attainment of proper physical characteristics to withstand the intermittent shocks and strains to which the front axle is subjected.

The Logan Gear Co., Toledo, O., has succeeded in overcoming many of the inherent difficulties of tubular axle design and is now fabricating axles of this type on a production basis. Perhaps it will prove interesting to trace the production of these tubular axles which in some instances are replacing the more expensive, heavier, drop-forged I-beam type. Straight S.A.E. 1040 seamless steel tubing is used for manufacture. The tube lengths are taken to bending machines where the double bend for necessary drop is made, all bends being made cold. The tubes then are clamped in a specially designed sawing machine where the ends are cut at the desired chamber angle.

From the saw the tubes are formed and cut automatically in preparation for the reception of the king pin bearing. These bearings are machined from bar stock of lower carbon content than the tube itself. This separate unit is pressed into place and welded in the tube ends before going to the heat treat.

The axles now are placed on the conveyor of the combination normalizing and hardening furnace. This furnace was designed specially for the work by the Surface Combustion Corp.,



Discharge end of combination normalizing and hardening furnace, at the right, and charge end of the drawing furnace, at the left. Automatic quenching machine is in the background between

Toledo, O., in conjunction with the Logan Gear Co. engineers. It is of the continuous chain conveyor type, gas fired, with a capacity of 50 axles per hour from cold to normalizing temperature of 1650 degrees Fahr., and a hardening temperature of 1470 degrees Fahr. The capacity of the furnace is limited by quenching capacity, rather than by limitations of the furnace itself. The hearth width from wall to wall is approximately 5 feet 6 inches. Hearth width available for work passing through the furnace is 54 inches. The length of the normalizing furnace inside from wall to wall is approximately 13 feet. The hardening unit is approximately 9 feet in length. The cooling chamber between units is 6 feet long. The entire combination normalizing and hardening machine occupies a floor space of 33 by 9 feet.

Fired With City Gas

The furnace is fired with high-pressure automatic proportioning two-stage velocity burners, firing above and below the hearth for the entire length of the furnace. City gas of 570 B.t.u. content at 10 pounds pressure is utilized as fuel. Automatic recording controls and self proportioning inspirators are provided with the furnace.

The tubular axles first pass through the normalizing zone on alloy steel chains, spaced on 30-inch centers, that ride in turn on alloy channels. The tubes are raised to normalizing temperature of 1650 degrees Fahr. and held at this temperature for a period of time to insure thorough normalization. They pass then into the water cooled chamber where the temperature of the work drops just below the lower critical range point. From here the work progresses to the reheating zone where it is brought to the proper temperature for subsequent quenching.

The furnace material handling mechanism is timed and synchronized to the capacity of the patented quenching machine, located at the discharge end of the combination normalizing and hardening furnace. The conveyor is so timed that when quenching operator removes an axle from the conveyor, another axle automatically is brought from the furnace. When the axle comes up from the furnace the mechanism stops until another removal is made. The axles are quenched in a specially designed fixture that grips the axle while hot, and then is flooded with warm water.

After quenching, the axles are pickled to remove all scale. Following the pickle the axles are ready for drawing. The drawing furnace, also designed and built by Surface Combustion Corp., is located opposite the discharge end of the hardening furnace, adjacent to the quench, for convenience in progressive production.

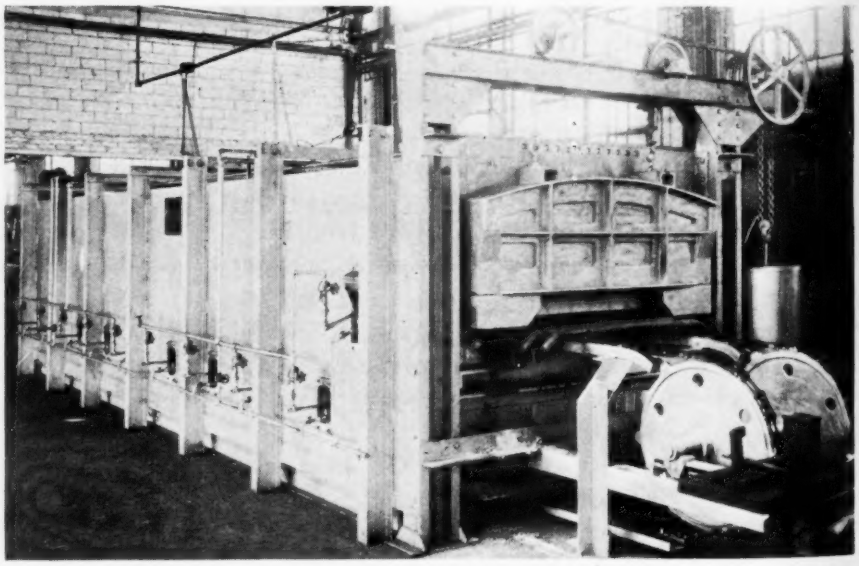
This furnace, provided with reheating and soaking zones, has a capacity of 75 tubular axles per hour weighing approximately 17 pounds each, heated from cold to 800 degrees Fahr. The overall length of furnace chamber is 22 feet 6 inches, with wall to wall width of 71 inches, and hearth width of 56 inches. It occupies a floor space of 44 by 8 feet 6 inches. The charge end door is of insulated cast iron. Discharge is facilitated through a slot 56 inches wide by 4 inches high.

Variable-Speed Conveyor

The material handling mechanism consists of malleable iron chains supported by cast-iron rails, with driving power at the discharge end and sprocket equipment at the inlet end. Variable-speed control fixes the charging rate on 18 minute heating cycles.

The furnace is fired with 570 B.t.u. city gas by means of 18 high-pressure two-stage velocity burners. At a production rate of 75 axles (1200 pounds net work) per hour gas consumption of the draw furnace is approximately 669 cubic feet per hour, although burner capacity is 1287 cubic feet per hour. Automatic heat controls and recording instruments closely regulate heat in both heating and soaking zones. During the drawing process temperatures are held within close limits to obtain the desired hardness in the finished axle.

Atmosphere control during heat treating is of such a character that scale is almost entirely absent. Rockwell hardness tests are used to indicate the uniformity of the heat treating. Rejections are said to be few.



Charge end of the drawing furnace, showing two tubular axles on conveyor entering furnace

Gears for Aircraft Engines A Quality Product

BY ALLAN K. HAMER, Metallurgist,
Meisel Press Mfg. Co., Dorchester, Mass.

TO MANUFACTURE gears of the highest quality for aircraft engines it is necessary first to inform the steel mill just what is expected of the steel being purchased for the gears. Producing quality gears involves not only clean steel, but also high grade forgings and accurate control of the various heating operations.

When a shipment of steel is received a certain percentage must be given a chemical analysis to determine whether or not the steel conforms to the specifications that are required. If the analysis is within the specified composition, several forgings from the shipment are subjected to the deep acid etch test which reveals the cleanliness of the steel. Should this test prove that the examined blanks are in good condition they are then given the McQuaid-Ehn carburizing test. This test is of paramount importance as it reveals clearly a normal or abnormal texture.

Abnormal steel is a detriment to a gear for it discloses that the steel has not been deoxidized properly in the melting, and contains an excess amount of dissolved oxides. This condition makes it difficult for the iron carbide that is formed during the carburizing operation to dissolve, with the result that on slow cooling the cementite of the hypereutectoid zone, instead of forming a network of cementite around the grains of lamellar pearlite, separates out as heavy ridges of cementite, in the matrix of ferrite, the pearlite of this zone divorcing to form free ferrite and cementite. Spalling of gear teeth often can be attributed to this condition as it is almost an impossibility to harden abnormal steel without soft spots.

Reasons for Spalling

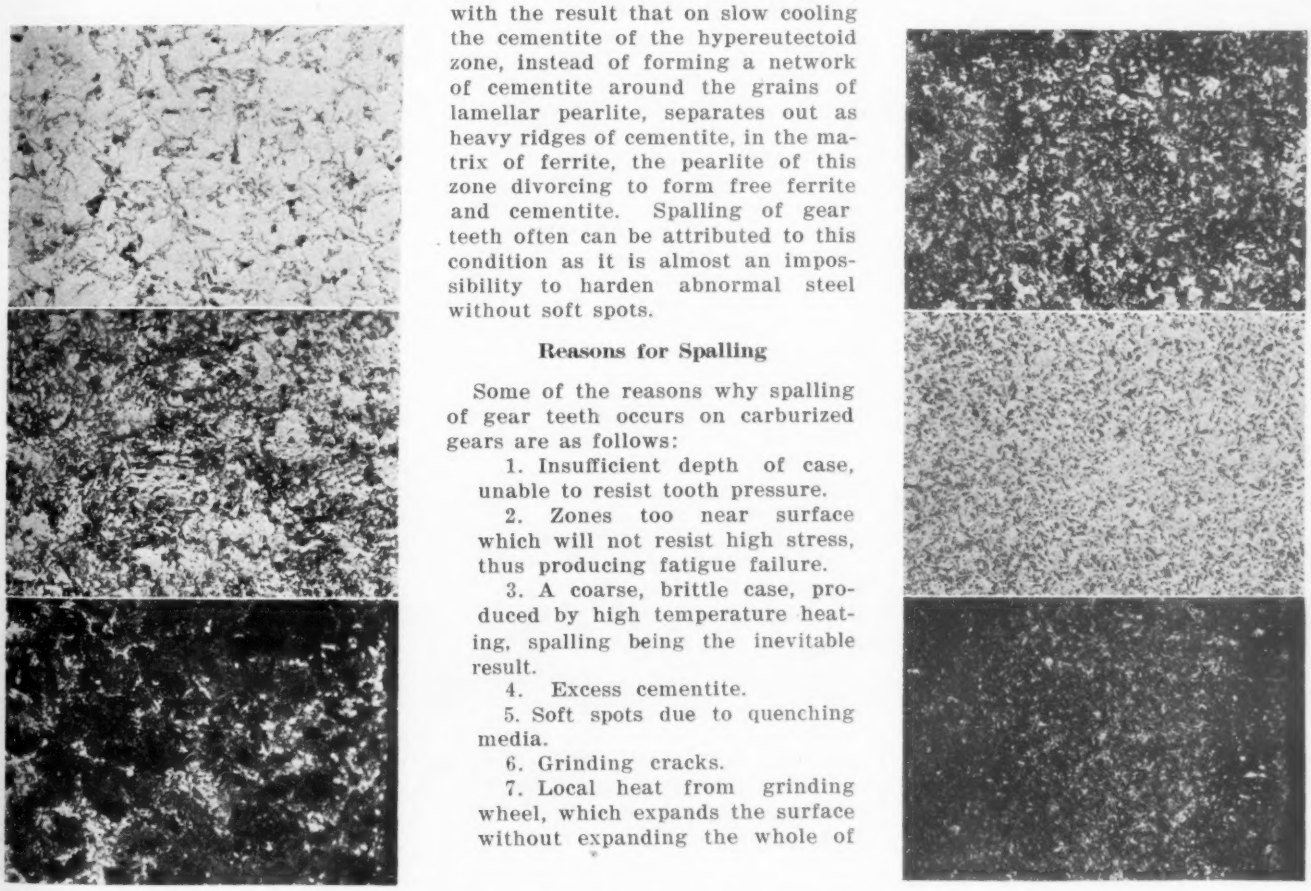
Some of the reasons why spalling of gear teeth occurs on carburized gears are as follows:

1. Insufficient depth of case, unable to resist tooth pressure.
2. Zones too near surface which will not resist high stress, thus producing fatigue failure.
3. A coarse, brittle case, produced by high temperature heating, spalling being the inevitable result.
4. Excess cementite.
5. Soft spots due to quenching media.
6. Grinding cracks.
7. Local heat from grinding wheel, which expands the surface without expanding the whole of the piece, thus producing cracks.
8. Hard wheels.

Gear blank forgings should be examined for grain flow, as this is of vital importance where the gears are to resist the shock load of the airplane engine. Proper grain flow can be accomplished by forging the gears from a flat bar, or by hammer upsetting, the latter being the most satisfactory method. Flow lines must extend outward from the center of the forging to the extreme end of each individual tooth, thus allowing the teeth of the gears to be able to withstand the working loads applied when the engine is in operation.

If the samples taken from the shipment are passed by the metallurgical department the batch of steel has a lot and heat number assigned to it so that records may be kept on file and referred to if at any time the gears do not give satisfactory results under the severe action of the engine.

After the heat numbers have been assigned to the shipment the work is sent to the lathe department where it is machined in the rough form;



PHOTOMICROGRAPHS showing typical structures in S.A.E. 2512 steel, used in aircraft gears. Top left is a representative forging as received. Center left is a section of the core of a forging which has been carburized and cooled slowly in the furnace. Bottom left is a section of the case of the same steel. Top right is a forging which has been normalized at 1600 degrees Fahr. and quenched in oil. Center right is the core of a forging which has been normalized and carburized and given a core treatment at 1550 degrees Fahr., followed by quenching in oil. Bottom right is the case of the same steel

from this department the material is taken to the heat treating department for a preliminary treatment, said treatment being carried out extensively at the writer's plant where considerable experimental work has been done in this particular line. All low-carbon alloy steels have been found to respond to the turning and cutting operations more efficiently after preliminary treatment, if the brinell hardness is kept within 200 to 248.

This preliminary treatment consists of the heating of blanks, usually S. A. E. 2315 or 2512 steels, in gas-fired furnaces regulated by air valve controllers. These furnaces maintain a temperature within plus or minus 10 degrees Fahr. Each furnace has a time clock attached to it, thus eliminating the operators from any guesswork whatsoever as to the proper heating cycles. The metallurgical department specifies the cycle of heating and is held responsible for any work that is under or over heated.

Specifically, gear blanks are heated to a temperature of 1700 degrees Fahr. for a certain length of time according to their diametrical size, and then quenched in oil, which is circulated to maintain a constant temperature of 100 to 110 degrees Fahr. After this high quench or refining operation has been applied, the work is drawn in a homo furnace, temperature being controlled automatically within plus or minus 5 degrees Fahr. The drawing temperature is adjusted to give a reading of 200 to 248 brinell hardness on the work. Generally 1100 degrees Fahr. produces this hardness.

After the work has had this initial treatment it is returned to the lathe department for further machining. On gear blanks requiring the carburizing process where some portions are to be left soft after hardening, an excess of stock must be left on the surfaces that are to be machined off after the carburizing operation. In this connection the plant has resorted to various methods to determine just what procedure is the most practical. The machining process is an expensive one compared with the copper plating or clay method, but it is regarded as the only 100 per cent satisfactory process.

Carburized in Vertical Furnaces

Following the machining operation and the cutting of the teeth, the gears are ready for the carburizing treatment. Parts manufactured at this plant all are carburized in a vertical-type gas furnace with automatic control. Manufactured gas as the carburizing agent has been found much more satisfactory than the old method of packing the work in boxes with some grade of carbonaceous material.

The furnace has thermocouples inserted at the top and bottom of the retort, thus allowing no difference in the temperature on top or bottom of the furnace, without the operator in charge noticing it. If a variation is noticed it can be adjusted immediately, thereby preventing any difference in the depth of case on the work. These couples operate automatically within plus or minus 10 degrees Fahr. A couple is inserted through the cover on top of the furnace, sliding into the retort adjacent to the work. This couple is attached to a potentiometer which records the temperature of the work.

When the work reaches the carburizing temperature the carburizing gas is applied under a constant pressure of 10 pounds, operating until the desired depth of case has been obtained, the gas being dehydrated before entering the retort.

The work must pass through the inspection department after each subsequent operation for examination, such as checking the diameters, etc. The carburized gears then are returned to the lathe department for removing excess stock on the portions that are to be left soft. The final hardening treatment is applied to the gears after this operation.

Hardening generally is performed in the new ho-hump type electric furnace, which is provided with a fan in the bottom to produce a uniform circulating temperature.

The predominating oil hardening steel used for airplane gears, S. A. E. 6150, is a chrome-vanadium grade which has a high strength and impact value. The texture of the steel can be made fine by applying a temperature of 1580 to 1600 degrees Fahr. This fine structure greatly increases the fatigue value.

The three important factors to watch in the final hardening treatment are: Time of heating; temperature; and atmospheric condition of furnace.

It is necessary in the final hardening operation that the atmospheric condition of the furnace be reducing; a condition which can be governed nicely in gas furnaces by using a slight amount of excess gas. How-

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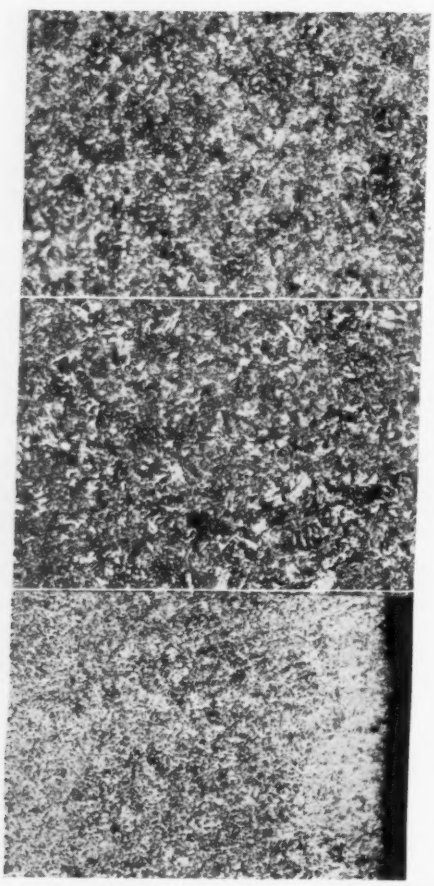
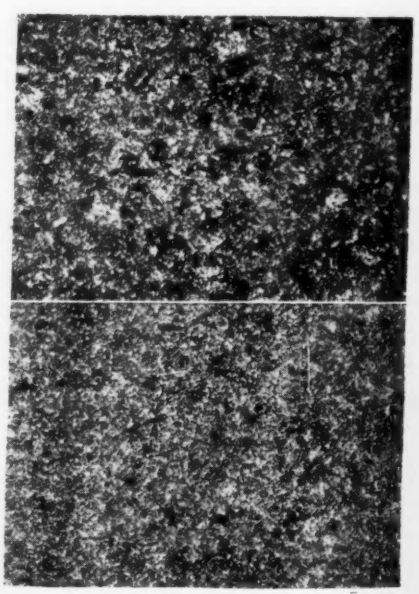


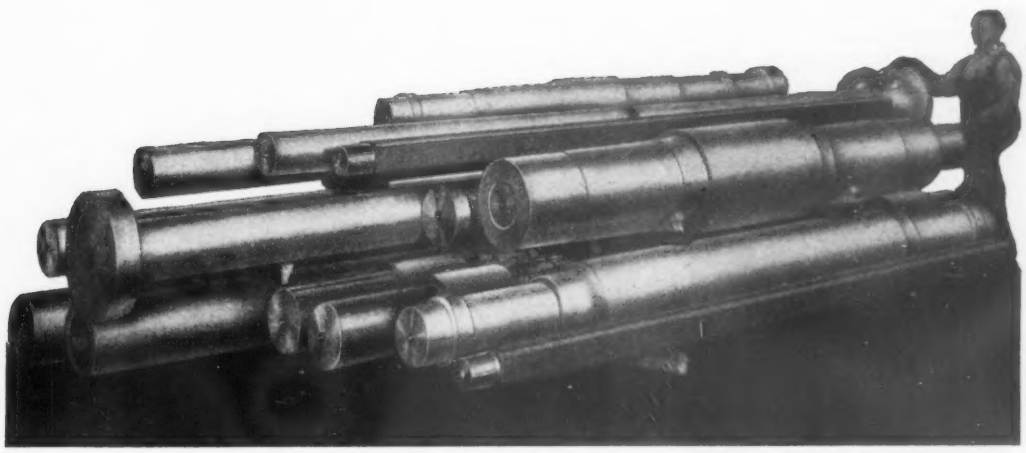


TOP left is S.A.E. 2512 steel, given a preliminary treatment consisting of heating to 1600 degrees Fahr., quenching in oil and drawing at 1100 degrees Fahr. Center left and bottom left are core and case, respectively, of the same steel, carburized, quenched in oil at 1550 degrees Fahr. for the core, and heated to 1400 degrees Fahr. and quenched in oil for the case. Top right is S.A.E. 6150 bar stock given a preliminary treatment consisting of heating to 1600 degrees Fahr., quenching in oil and drawing at 1340 degrees Fahr. Lower right is S.A.E. 6150 bar stock heated to 1600 degrees, quenched in oil and drawn at 1300 degrees Fahr

FORGINGS

Mesta forgings are made of acid open hearth steel ingots, produced in our own open hearth department. The quality is carefully guarded by analyses in a modern laboratory.

All forgings are worked under large steam hydraulic presses, which insures close grained structure to the center of the forging. The Mesta machine department is one of the largest and most modern in the United States. With this equipment and the skilled employees, accurately finished forgings are assured.



MESTA MACHINE COMPANY

Pittsburgh, Pa.

Mesta

American Railroads Experiment with New Type of Track Construction

RAILROADS are showing increased interest in the use of a new type of track construction, recently introduced in this country after development and widespread adoption in Germany. It is known as GEO construction; patents are held by the American GEO Co., New York, but its manufacture and sale are conducted by the United States Steel Corp. Carnegie Steel Co., Pittsburgh, has supplied the track for the 12 roads who have laid or are laying experimental stretches.

The first installations were made by the Missouri Pacific, New York Central and Illinois Central railroads late in 1928 and early in 1929, while during the past several months nine other roads in various sections of the country have laid the construction over several miles of track. More than 8000 miles of GEO construction have been laid in Germany since 1925, where it has been adopted as standard, and it also has been introduced in other foreign countries.

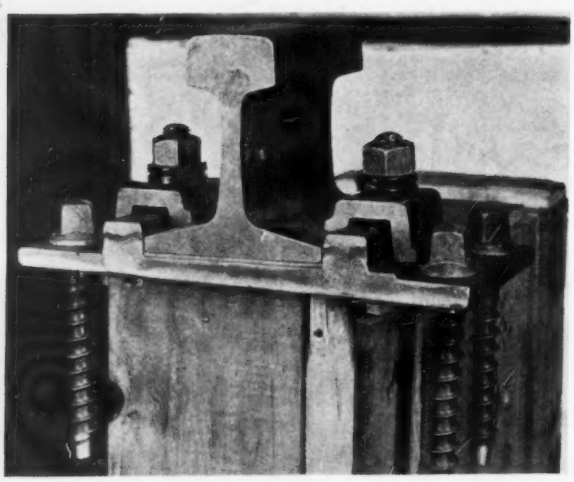
Rail Seats in Steel Plate

The design, as shown in the accompanying illustration, consists of a heavy wide rolled-steel plate, having two solid longitudinal ribs with space between forming the rail seat. The plate is fastened to the tie with four screw spikes which are independent of the rail. Two rolled steel clamps of U-shape cross section, 3 inches in length, secure the rail to each tie plate. The clamps, one on each side of the rail, straddle the ribs of the tie plate, the shorter or inside leg of the clamp bearing on the flange of the rail, and the longer leg bearing on the tie plate.

The clamp bolts have semielliptical heads which fit into a similar neck milled in each rib of the tie plate, while a double coil spring washer is placed between the clamp and the nut of the clamp bolt, forming an elastic integral construction between the rail and plate. Compressed wooden shims are applied between the rail and the tie plate, providing additional elasticity to that afforded by the spring washer. The shims are made from poplar, compressed and creosoted. Copper-bearing open-hearth steel can be used in the manufacture of the various metal parts, complete assembly of which weighs about 33 pounds.

Principal advantages claimed for the GEO type of construction are: Reduction of expansion of rails, reduction of mechanical wear between tie and plate, each of rail replacement without disturbance of tie plates or ties, increase in life of tie and rail, and improved quietness and smoothness in track riding. Joints can be laid close and held in position, maintaining smooth joints without the appearance of any noticeable amount of batter.

The Missouri Pacific railroad more than two years ago installed the GEO track on one mile at Red Bridge, Mo., where traffic is heavy and the road includes some long 6-degree curves. No replacements have been required. This period of service compares with 18 to 20 months which was the life of track under the old type of construction. In replacing rails the tie plate is not disturbed, so that the tie is not damaged by the necessity of making additional spike holes.



This type of track construction is said to improve quietness and smoothness in riding and to simplify rail replacement

Welded Steel Plate Construction Finds New Applications in Industry

REPRESENTATIVES of a number of steel consumers in the Philadephia district, interested in steel plate welding, attended a lecture at Coatesville, Pa., July 29, by Everett C. Chapman, director of engineering research for Lukenweld Inc. The lecture was followed by a visit of inspection of welding jobs of diversified character which are going through the company's shops.

The practice of his company, Mr. Chapman declared, involves the use of ductile weld metal. The electrode coating contains organic matter which burns and absorbs oxygen, thus enabling the welding operation to be performed in a reducing atmosphere. Welds made by this process showed much greater impact values than welds made with bare wire and about 16 times the impact value of cast iron, he claimed.

Mr. Chapman discussed the principles of design involved in producing welded structures. He warned against any arbitrary reduction in the thickness of steel sections as compared with cast-iron sections. Design calculations must be made on the basis of cutting in two the principal moments of inertia of the cast-iron part to be replaced. He described methods of welding various structures, machinery bases, crane girders, etc., and told of two methods of bracing which have been applied with good results.

Greater Rigidity Shown

In bases for machinery on which a motor is to be mounted along with the driven machine, the bracing is by means of tubular sections, formed by bending plates to the shape of the letter U. These braces, on being welded underneath the machinery base throughout their length, are claimed to have greater torsional rigidity than the usual type of rib bracing.

In built-up girders, such as crane girders, the company has found that the best and strongest bracing is obtained by welding plates inside the girder at angles of 45 degrees to the vertical; these bracing plates are welded to the flange and web plates of the girders and their bottoms and tops are welded to each other to

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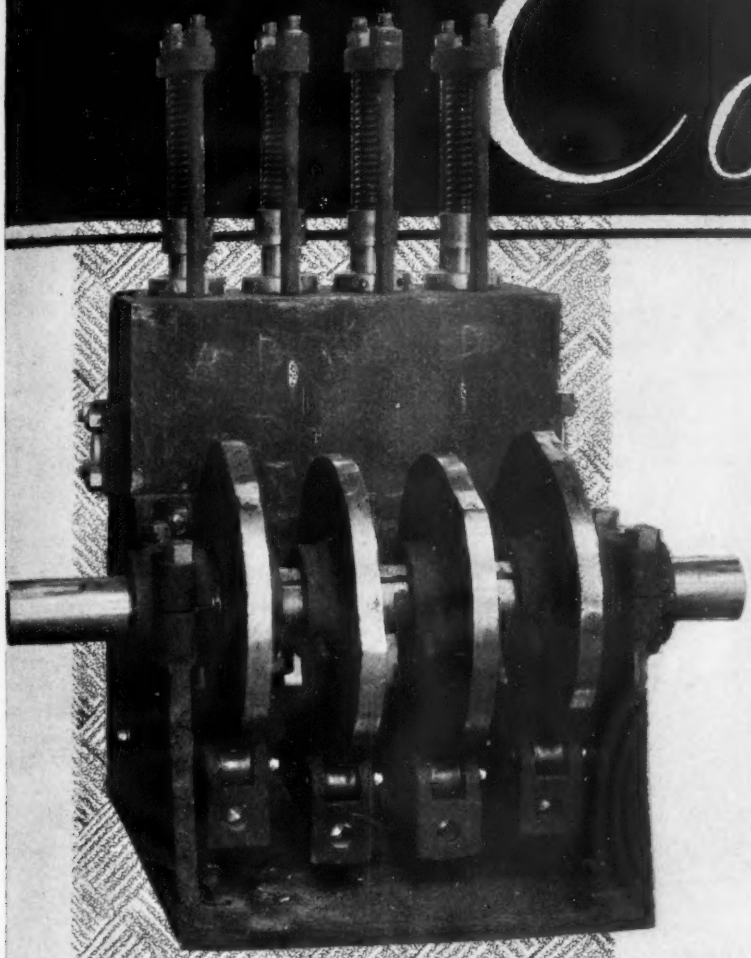
Control

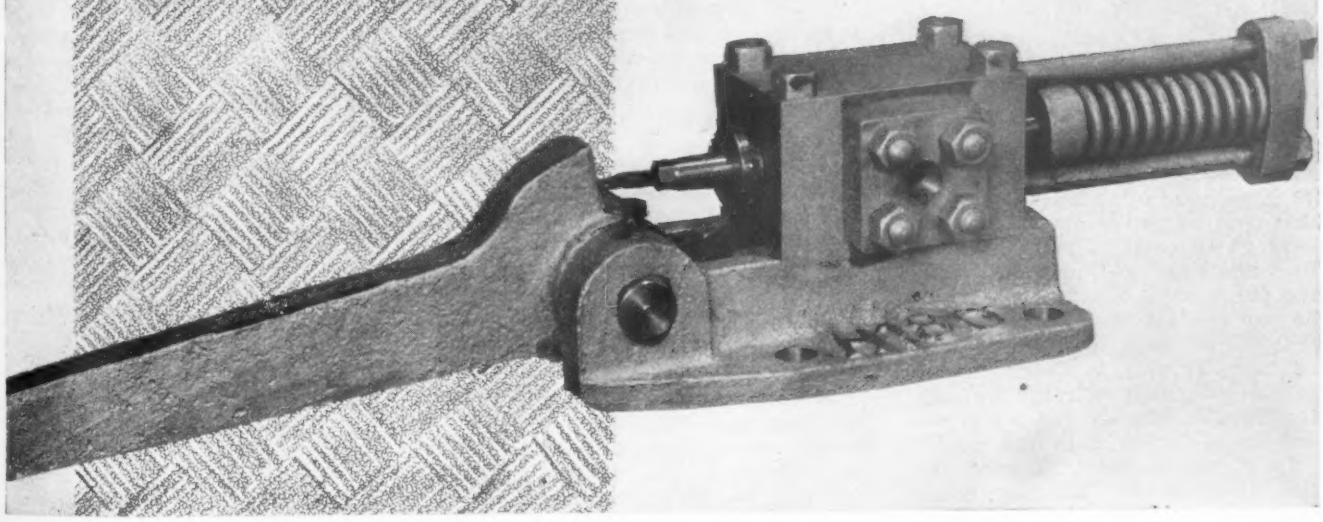


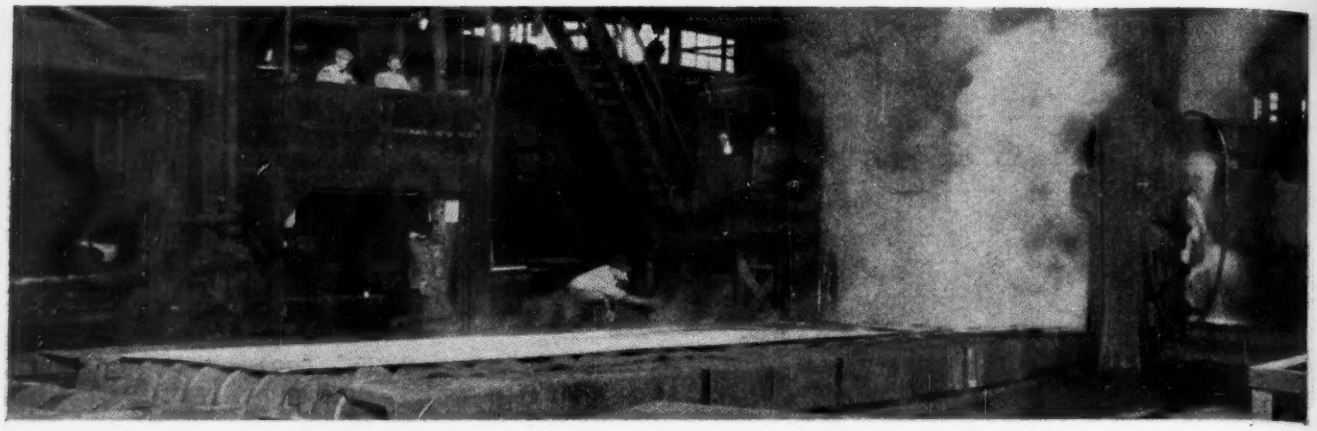
—the very name implies a directing of power . . . a mastery of operation. *Control* — serving as an industrial agent, is dependent upon none other than mechanical or human direction. A gigantic press, hydraulic in principle, registers its action by *valve control*, the human element of which — enters not so much into its manual operation as in its design.

Birdsboro valves — *hydraulic operating, high pressure stop valves, poppet type, high pressure check valves, pressure relief or shock valves*, are all designed with a full knowledge of their field . . . their manufacture shares the atmosphere of mammoth presses in erection. We have these reasons to believe you content with our product.

BIRDSBORO

STEEL FOUNDRY AND MACHINE COMPANY
DESIGNERS AND BUILDERS
BIRDSBORO, PENNSYLVANIA





PROGRESS IN STEELMAKING

ONE large steel making interest has a method of making available to its operating men, metallurgists and engineers the contents of business and technical publications. Copies of each publication are routed through the organization and on each copy is pasted a blank form on which the various men indicate articles which they would like to preserve. When the publications finally get to the chief engineer, he prepares photostats of the desired articles and turns them over to the men who requested them. As a result each man has a permanent file in which he has available at a moment's notice the published expressions that refer to subjects in which he is interested.

A LARGE steel plant finds most of its troubles with electric motors are of a mechanical nature. Most motor breakdowns in this plant originate in the bearings. Commutator troubles come next in number. Electrical troubles are infrequent.

◆ ◆ ◆

A steel executive, commenting on the anecdote published in the July 23 *Progress in Steelmaking* says that steel companies are not the only ones which go to ridiculous lengths in "repairing" old material where the purchase of new material would be more economical. He points out that the railroads are good examples of how far this tendency can be carried out; some railroads are making track accessories with a cost several times higher than the market price of such material. He condemns the issuance of blanket orders against purchase of anything new, saying it involves wasteful "repairing" and helps to prolong the depression.

TENDENCY in the steel industry today is to install big boilers. Ten years ago one company had 500-horsepower boilers, on blast furnace gas and pulverized coal, with boiler efficiency of 45 to 50 per cent. Today it has 5000-horsepower units, equipped with economizers, preheated air, etc., using blast furnace gas and pulverized coal, and obtaining an efficiency of close to 85 per cent.

◆ ◆ ◆

Rolled steel mill housings, fabricated by arc welding, frequently are mentioned as a possibility of the future. Progress is being made in that direction. Fabricated gear housings for main roll drives are coming into general use and an unusually large fabricated gear housing recently was installed in a hot strip mill in Pennsylvania.

◆ ◆ ◆

Aluminum bus bars are being used as mill connections on a bar mill in the Pittsburgh district, replacing the usual copper bus bars. This is understood to be the second large installation in the steel industry involving such use of aluminum bus bars.

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A simple method of manual control has been devised by an open-hearth superintendent. The basis of the scheme is the reversal of the furnace according to temperature rather than the length of time elapsed since the last reversal. A recording dial chart shows the temperature in the flues just beyond the checkers and the reversal is made when the flue temperature is shown to be about 1400 degrees Fahr. A draft gage shows the extent to which the checkers have become clogged. If the draft is increasing so as to approach a maximum of approximately 2 inches of water in the gage, and the fuel consumption is increasing above the normal of 42 gallons per ton and the temperature in the checkers is building up, the furnace is laid off for cleaning and repairs.

"IN GAS cutting, what is the best method of removing scale—removing it with oxygen, or scraping it off, and how?" is a question from a mill superintendent. An authority to whom STEEL referred this question answers as follows: "Preparation of coure would depend entirely upon the material. No preliminary cleaning would be required for ordinary mill scale on its surface. This covering cannot be very heavy because when exceptionally thick it flakes and falls off in handling.

"If the material has weathered for some time and has a heavy coating of rust, it would be more economical to clean it before cutting, although it could be cut directly. An ordinary pneumatic chisel is used for this purpose, the scale along the line of cut being removed. It is common practice to use pneumatic chisels in this way for cutting plates and rivets from the underside of ships. Sand adhering to risers of steel castings is removed in the same way. Acetylene is particularly convenient in cutting dirty material."

Large Uses of Steel in Small Ways

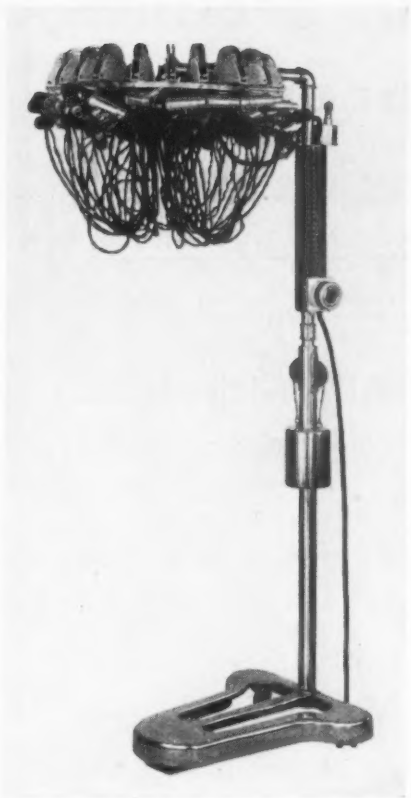
197th Article

Hair Waving Machines

BARBER shops and beauty parlors afford a growing outlet for steel products. The manufacture of permanent wave machines now requires more than 100 tons of steel annually.

A typical machine consists of a base which usually is a casting, a transformer, an upright pole, a bracket, and a dome or a receptacle box. In one design the individual heaters are plugged into the receptacle box and are not a part of the machine itself. Frequently there is auxiliary equipment, such as a time indicator.

The base is mounted on ball bearing casters. In one design the pole is supported by eight steel bars, and in this machine the connectors used to make the contact between the heater and the cords contain small steel springs. Surrounding the base, in several types of machines, is a perforated or open-work chromium plated steel sheet casing. The pole in nearly all designs is a piece of steel tubing. The dome frequently is made of aluminum, although in some of the newer designs it is chrome-nickel steel.



65,000 Machines in Use

It is estimated that there are 50,000 beauty shops in the United States and that the average number of permanent wave machines to each parlor is 1¼. In addition to these the machines in barber shops bring the total number installed ready for use to about 65,000, according to a leading manufacturer. Depreciation and obsolescence are high so that the replacement business is considerable. The nine leading manufacturers are said to make a total of about 7000 units a year. There are a dozen smaller concerns making machines, so that a figure of 10,000 a year as total production in this country seems to be conservative.

The average weight of steel per machine is 20 pounds or more. About 40 per cent is silicon steel laminations for transformers; 25 per cent, steel tubing for the upright pole and bracing; 10 per cent, casters and caster housings; 10 per cent, bolts and nuts; and 15 per cent for dome and miscellaneous items.

The total weight of a typical machine is about 50 pounds, but some are constructed chiefly of brass and aluminum. In one machine a brass tube is used for the pole and bracket as the tubing serves as a conductor for the return circuit to the transformer.

Manufacturers of corrosion-resisting steel have been invading the beauty parlor market with considerable success and in at least one new design of machine all exposed metal parts are of chrome-nickel steel. The damp atmosphere and wide range of temperature under which the machines work accelerate corrosion, and it is likely that manufacturers will turn more to nickel or chrome-nickel alloys for all steel parts.

Due to the large number of manufacturers and the comparatively small output for each production has not been placed on an efficient quantity basis, and in most plants the manufacture is essentially an assembling proposition.

Fuel Briquet Production Shows Loss in 1930

Production of fuel briquets in the United States, with a total of 1,028,865 tons in 1930, decreased 15.1 per cent from the 1,212,415 tons of 1929. In these two years only has output exceeded 1,000,000 tons.

According to statistics compiled by the bureau of mines, Washington, and published in a bulletin, "Fuel Briquets in 1930," by W. H. Young and J. M. Corse, the value of production in 1930 was $8,028,736, as compared with $9,515,205 in the preceding year, a decline of 15.6 per cent.

Although production declined in 1930, it was still well above the high level set in 1926 when demand was stimulated greatly by the anthracite strike. The fact that output remained high last year, at a time when supplies of coal were ample, is a definite indication of growth and stability in the industry. Production has more than doubled in the last ten years.

Small Decrease in East

In 1930, eastern states showed the smallest proportional decrease; the output was 300,609 tons or 7.5 per cent less than in 1929. Central states, with 641,171 tons, reported a decrease of 18.6 per cent from 1929. Production in the Pacific coast states amounted to 87,085 tons, a decrease of 12.3 per cent. Wisconsin accounted for more than half of the total output. Its three plants and the three plants active in Pennsylvania made more than 67 per cent of the country's total. Expansion in the central states in recent years has been particularly notable.

Plants reporting production of briquets on a commercial scale in 1930 numbered 25, the same as in 1929. In 24 years from 1907 to 1930, the number has slightly more than doubled, as compared with an approximate seven-fold increase in the average annual output per plant. average production per plant in 1930 was 41,155 tons, the lowest since 1921. During the same period, 50 briquetting plants were abandoned.

In addition to statistics on domestic production, the bulletin contains information on manufacture and shape, distribution, plant capacities and world output. The bulletin is available from the superintendent of documents, Washington, for 5 cents per copy.

Reinforcing Bar Sizes Are Simplified

Simplified practice recommendation R26-30 for steel reinforcing bars has been approved by the industry for promulgation by the department of commerce through the bureau of standards, Washington. Sizes listed in the recommendation include ¼, ⅜, ½, ⅝, ¾, ⅞ and 1-inch round bars, and ½, 1, 1⅛, and 1¼-inch square bars. The recommendation is subject to annual revision by the standing committee of the industry.

If you cannot change your product quickly and economically

—to meet changing field conditions » to take immediate advantage of engineering creation » to defeat unforeseen troubles that may develop in the field

Each evening sees some new field demand developed. Each morning sees the start of a new creation on the drafting board of some engineer.

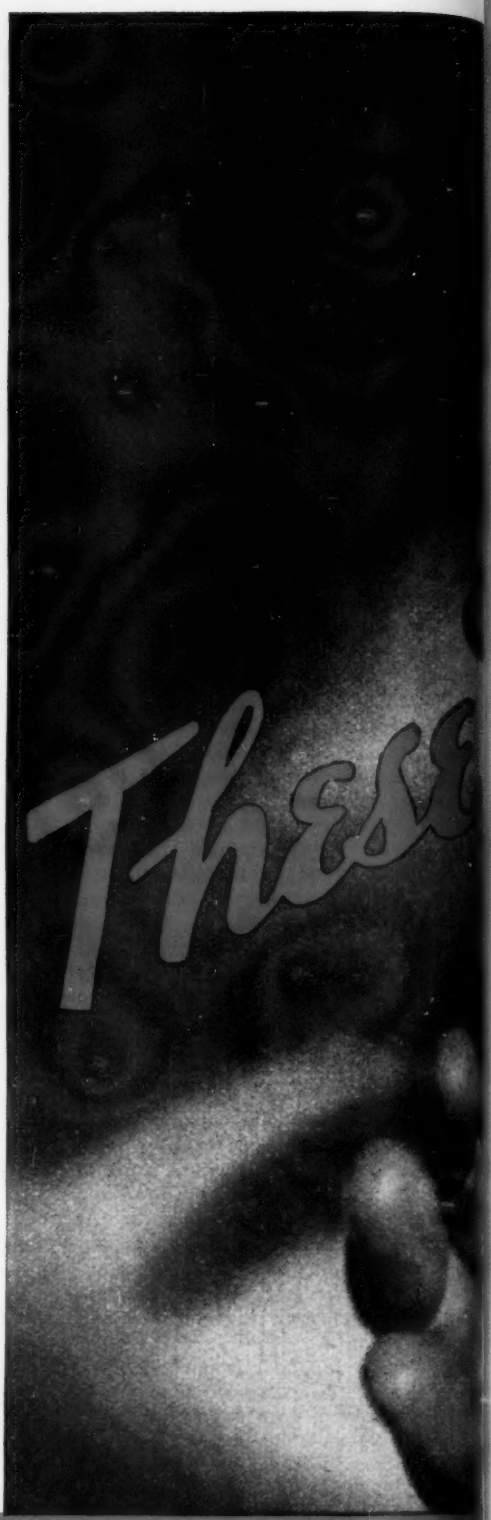
Change is the only assured and constant thing in all manufacture.

Any method of making parts that hinders change is dangerous. Such methods say, "You can't change me until I am paid for." And engineering hands may find themselves as tightly tied as those in the picture.

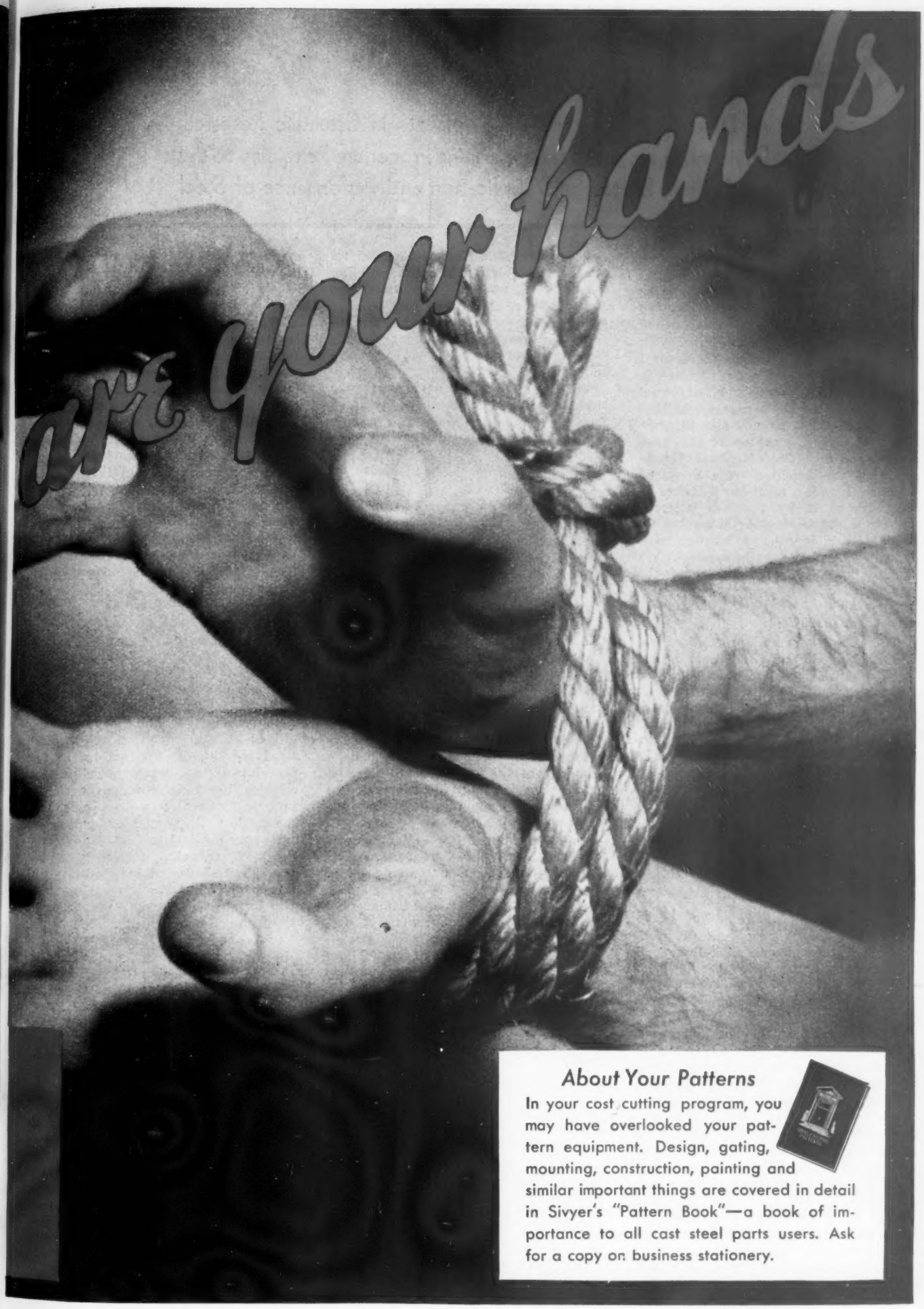
The development of Sivyer Cast Steel and Cast Alloy Steel Parts frees many and many a pair of engineering hands for new adventures in design.

Sivyer Parts ask no dies, no expensive equipment, no high initial investment, no long runs for economy. A simple, inexpensive pattern is all that is required. With such parts engineering hands are free to design, change and create new things without prohibitive penalties.

And free engineering hands are the best insurance of keeping one step ahead in the battle to capture any market.



SIVYER STEEL CASTING COMPANY · CHICAGO · MILWAUKEE



About Your Patterns

In your cost cutting program, you may have overlooked your pattern equipment. Design, gating, mounting, construction, painting and similar important things are covered in detail in Sivyer's "Pattern Book"—a book of importance to all cast steel parts users. Ask for a copy on business stationery.

Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

Testing Machine

Description of what is claimed to be the world's largest universal testing machine, in Edgar Allen News, England, July, 1931, *p.* 912, 1½ *pp.*, 1 *illust.*

Constructed for testing structural members of the new Sydney bridge in Australia, this Avery-type universal testing machine has a capacity of 1250 tons or 2,500,000 pounds and is probably the largest machine of this type in the world. The internal dimensions of the machine were arranged to be such that a steel bar 6 inches in diameter or 12 by 3 inches in cross section could be tested in tension up to 50 feet in length. A built-up steel column 50 feet in length and 45 inches square in section was required to be provided for in compression, and a lattice girder can be tested transversely on a span of 20 feet.

To follow the usual practice of not imposing a load greater than 5 tons per lineal inch on each knife-edge, the total knife-edge length had to be not less than 20 feet, and ih order to keep this within bounds four levers were arranged in parallel, each having a load knife-edge 60 inches in length.

The construction of this huge machine seems to be a further indication that the future of testing apparatus probably will lie more in the direction of testing the complete unit of a structure, instead of testing only the material.

STEEL, 8-6-31

Pipe-Line Currents

Electric currents in pipe lines and soil resistivity as indicators of local corrosive soil areas, by E. R. Shepard, bureau of standards research paper No. 298, 25 *pp.*, 18 *illusts*, 1 *table.*

The present tendency in the protection of pipe lines against soil corrosion is away from a uniform coating for the entire length of the line and toward the application of coatings selected with respect to the corrosive character of the soils involved. This calls for a knowledge of varying soil conditions and a means of locating local corrosive soil areas. Such areas, commonly termed "hot spots," are prevalent in many types of soils and it is in these regions that pipe lines suffer the greatest deterioration.

An extensive investigation on a dozen pipe lines ranging from the gulf coast to southern Kansas revealed an apparent correlation between pipe-line currents, soil resistivity and corrosion. Many cases of abrupt loss or discharge of current occurred in soils of unusually low resistivity. In such areas the pipe lines were found to be badly corroded.

The technique of surveying pipe lines for galvanic currents is discussed and a piece of apparatus for simply and quickly measuring soil resistivity is described.

STEEL, 8-6-31

Gamma Rays

Detecting defects in castings by radiography, using gamma rays, by Charles W. Briggs, and Roy A Gezelius, in Transactions and Bulletin of the American Foundrymen's association, July, 1931, *p.* 65, 25½ *pp.*, 20 *illusts.*

A discussion is given of the use of gamma rays from radium for the detection of internal defects in steel castings. The characteristics of the method are noted briefly, and it is pointed out how foundrymen may apply them to the inspection and improvement of steel castings. The application of the method is illustrated by a series of radiographs taken on several castings. The film records are discussed, with particular reference to the effects of internal chills, and these records are correlated with the defects found upon subsequent cutting up of the castings.

By use of the X-ray method, steel thicknesses of approximately 3½ inches can be radiographed successfully with commercial apparatus; however, with the gamma ray method successful penetration of thicknesses up to 10 inches can be accomplished.

STEEL, 8-6-31

Certifying Welders

Qualification and certification of welders, a discussion by James W. Owen, in Industry and Welding, June, 1931, *p.* 13, 2½ *pp., no illusts.*

The necessity and importance of requiring welders to demonstrate their ability to make welds complying with the design requirements of the structures on which they are employed have been accepted by those who have been benefited thereby. The problem, while comparatively simple to the experienced welding engineer, still has an element of complexity, particularly when the speed at which the art develops is taken into consideration.

Whether a manufacturer, the contractor, a trade school or some professional concern doing this type of work, conducts these tests is relatively unimportant. The real consideration is that the inspecting agent be well qualified to make the tests. Qualification, when made by an authoritative body, has many advantages to the user of the welding process. First and foremost, the designer of the product must have a definite assurance that the design values of the welded joint employed by him will be secured consistently in practice.

STEEL, 8-6-31

New Tools for Old

Factors governing replacement of machine tools, by J. R. Weaver, in American Machinist, July 2, 1931, *p.* 21, 2 *pp.*, 2 *illusts.*

Equipment surveys have shown the savings that may be realized by replacing obsolete and worn-out machines; but in getting back to the fundamentals of production, it may be shown that such provable economies by no means cover all instances where new equipment is desirable. A particular productive unit may not in itself be obsolete and may be actually of comparatively modern design and in good physical condition. But for a certain operation or process, it may not be equal in performance to other tools which have appeared on the market.

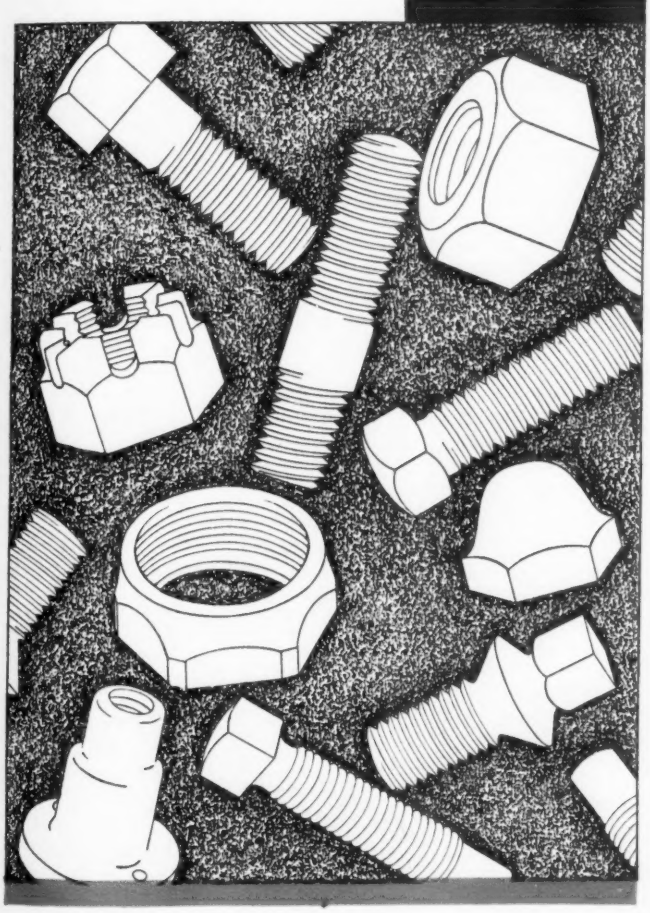
When a machine tool is actually obsolete and worn out to an extent that further repairs are not justified, then it is necessary to provide a new machine to maintain production at a proper cost. In instances of this type it is not always possible to show a sufficient saving merely on the production obtained from the new machine.

The author points out that it is desirable to keep an accurate record of maintenance costs of machine tools, and presents several illustrations of typical maintenance records. Without these records machine tools may get into such a state that they cost a considerable amount of money for maintenance each year without this fact being detected.

STEEL, 8-6-31

MACHINABILITY

THAT PROMOTES CONTINUOUS AUTOMATIC MACHINE PRODUCTION



THIS ACCOUNTS FOR THE WIDESPREAD ACCEPTANCE OF J & L BESSEMER SCREW STEELS

Tool changes, tool grinding, machine adjustments—all these take toll from production, all these depend directly on the machinability of the stock that is used. J & L Bessemer Screw Steels, known and noted for uniformly superior machining qualities, cut such down-time to a minimum.

Exhaustive research backed by 81 years of iron and steel experience disclosed the properties required to attain outstanding machinability. J & L ownership-control of all raw materials and processes of manufacture from ore to finished product assures that every piece of stock will have these properties. All J & L Bessemer Screw Stock is made in the same plants—by the same men—under the same processes, to the end that each piece will duplicate every other in chemical and physical characteristics, and serve with uniform satisfaction.

J&L STEEL

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AMERICAN IRON AND STEEL WORKS

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Warehouses: CHICAGO CINCINNATI DETROIT MEMPHIS NEW ORLEANS PITTSBURGH

Canadian Representatives: JONES & LAUGHLIN STEEL PRODUCTS COMPANY, Pittsburgh, Pa., U. S. A., and Toronto, Ont., Canada

Machine Tools and Plant Equipment

«Without machine tools modern machinery could not be built.»
—Joseph W. Roe

«Machine Tools—First Down, Last Up» Is This an Outworn Tradition?

ANY industry which faces as many real problems as does the machine tool industry cannot afford to waste any time over imaginary difficulties. There is reason to believe that one of the greatest problems faced by machine tool builders is becoming more and more an imaginary one. This problem is exemplified by what always has been accepted as the primary peculiarity of the machine tool business—that in swings of the business cycle it is, ". . . the first to go down and the last to come up."

It was not so many years ago that machine tools were purchased only under the immediate pressure of necessity, either that of adding to production facilities or of replacing existing machines which literally had fallen to pieces from old age. If general business was 25 per cent below normal, machine tool orders were likely to be 75 per cent below normal; if general business was 25 per cent above normal, machine tool builders were swamped. Accepting this as inevitable, representatives of machine tool builders simply went around "taking orders."

Many small users of machine tools, as well as some poorly managed large users, continue to do business in that way, and some machine tool salesmen continue to be only order takers, but more logical methods both in buying and in selling rapidly have been adopted in the last 15 years. In progressive metalworking plants everywhere, obsolescence of equipment is recognized as an inexorable economic force, production is planned carefully well ahead of time, and schedules of replacement tools as well as of additional tools for increased or redesigned production not only are laid out but are followed.

Real Sales Engineering

Progressive machine tool builders no longer are sending mere order takers to call upon prospects of this caliber. They are sending production engineers who can meet the users more than half way in that they can prove to them that obsolescence in some cases is much more rapid than conventional schedules indicate and can convince them that improved tools, and improved tooling methods, not taken into account in the production plans, deserve favorable consideration.

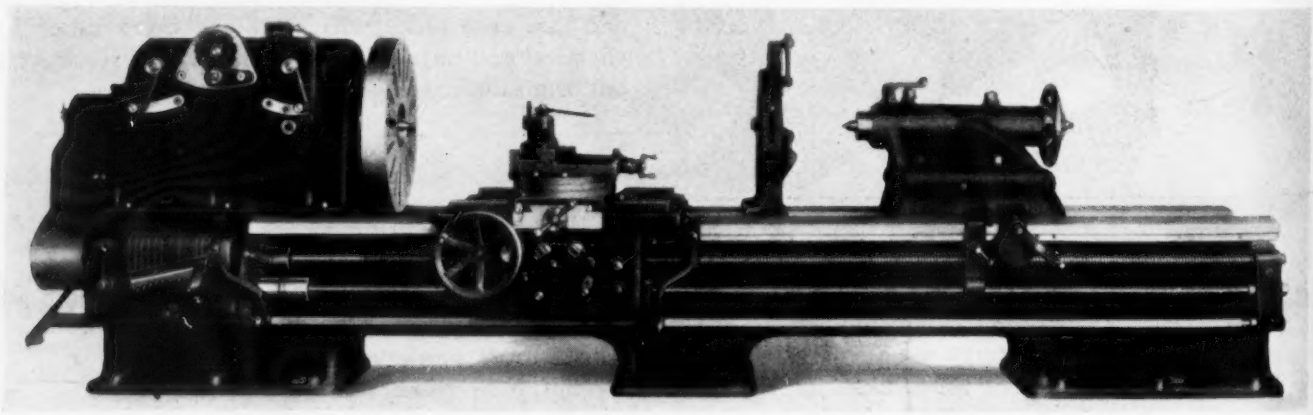
This is the kind of machine tool buying and machine tool selling technique resulting in the placing of certain large orders for equipment during a period when machine tool business should have been extinguished completely, according to literal interpretation of the old and pessimistic formula of the industry. This is the reason why certain leading machine tool builders are holding their own through this low swing of the business cycle in a way comparing most favorably with metal working industries in general, as proved conclusively by comparison of recent quarterly reports of leading machine tool building and using companies.

There still is plenty of room for improvement both in buying and in selling methods as far as plant equipment is concerned, but at least the way toward such improvement is plainly marked. While it is too much to expect that the machine tool industry ever will be independent of normal business cycles, there is unmistakable evidence that progressive machine tool builders are learning to avoid the unduly violent fluctuations which have been responsible for an evil tradition in their industry.

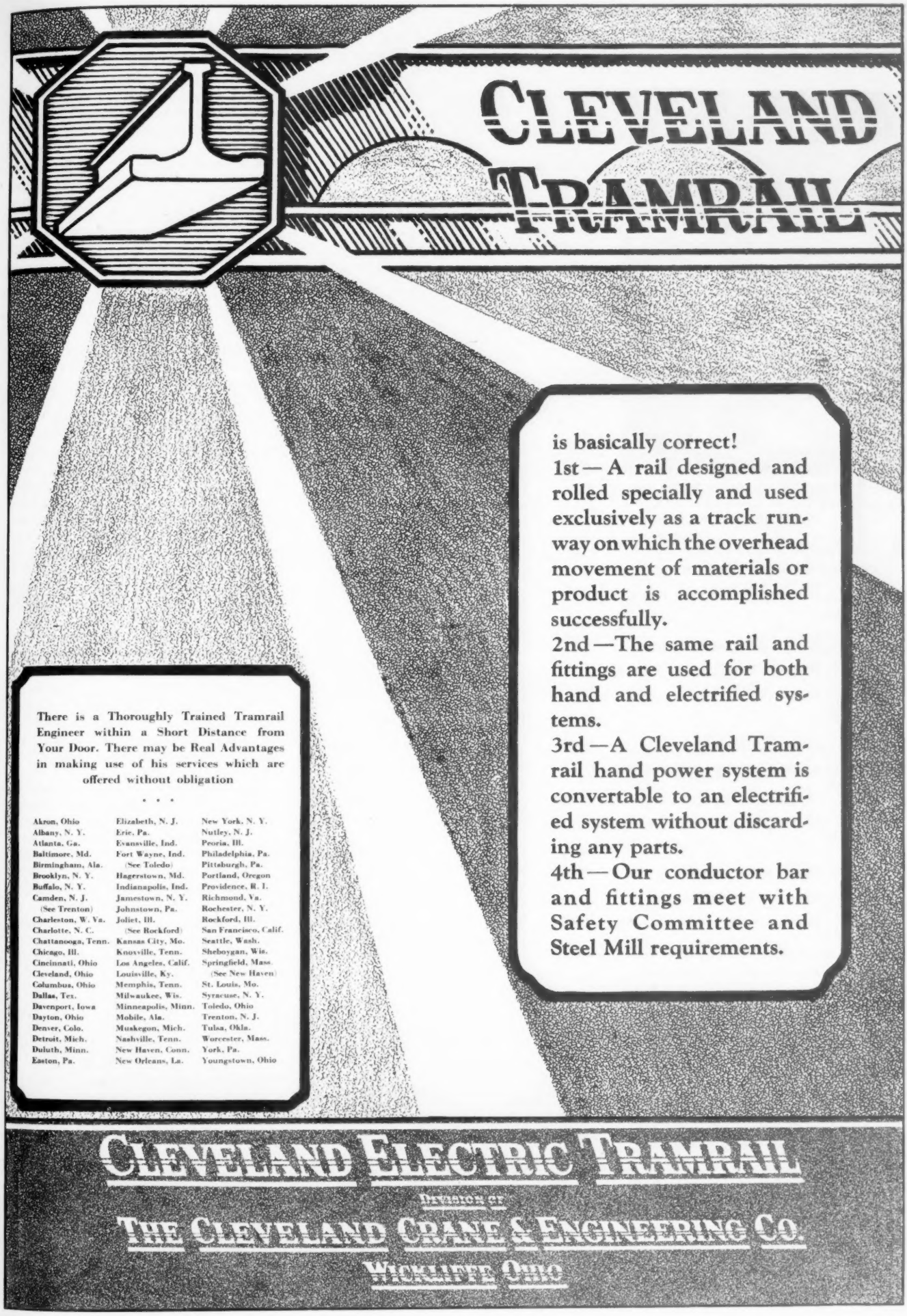
◆

Rugged Engine Lathes Have Direct-Reading Control

Sidney Machine Tool Co., Sidney, O., has just placed on the market through Joseph T. Ryerson & Son Inc., its general distributor, two new heavy duty engine lathes, one of 30 and the other of 36-inch swing. One



One of the new line of heavy duty engine lathes built by Sidney Machine Tool Co. and distributed through Joseph T. Ryerson & Son Inc., featuring rigidity and convenient control


CLEVELAND
TRAMRAIL
is basically correct!
1st—A rail designed and rolled specially and used exclusively as a track runway on which the overhead movement of materials or product is accomplished successfully.
2nd—The same rail and fittings are used for both hand and electrified systems.
3rd—A Cleveland Tramrail hand power system is convertable to an electrified system without discarding any parts.
4th—Our conductor bar and fittings meet with Safety Committee and Steel Mill requirements.
There is a Thoroughly Trained Tramrail Engineer within a Short Distance from Your Door. There may be Real Advantages in making use of his services which are offered without obligation
Akron, Ohio
Albany, N. Y.
Atlanta, Ga.
Baltimore, Md.
Birmingham, Ala.
Brooklyn, N. Y.
Buffalo, N. Y.
Camden, N. J.
(See Trenton)
Charleston, W. Va.
Charlotte, N. C.
Chattanooga, Tenn.
Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Columbus, Ohio
Dallas, Tex.
Davenport, Iowa
Dayton, Ohio
Denver, Colo.
Detroit, Mich.
Duluth, Minn.
Easton, Pa.
Elizabeth, N. J.
Erie, Pa.
Evansville, Ind.
Fort Wayne, Ind.
(See Toledo)
Hagerstown, Md.
Indianapolis, Ind.
Jamestown, N. Y.
Johnstown, Pa.
Joliet, Ill.
(See Rockford)
Kansas City, Mo.
Knoxville, Tenn.
Los Angeles, Calif.
Louisville, Ky.
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Minneapolis, Minn.
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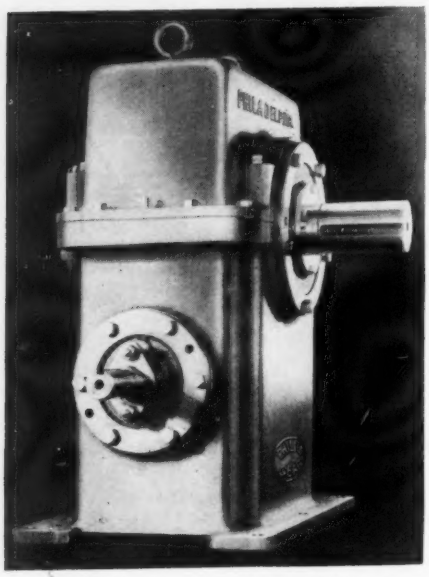
New Haven, Conn.
New Orleans, La.
New York, N. Y.
Nutley, N. J.
Peoria, Ill.
Philadelphia, Pa.
Pittsburgh, Pa.
Portland, Oregon
Providence, R. I.
Richmond, Va.
Rochester, N. Y.
Rockford, Ill.
San Francisco, Calif.
Seattle, Wash.
Sheboygan, Wis.
Springfield, Mass.
(See New Haven)
St. Louis, Mo.
Syracuse, N. Y.
Toledo, Ohio
Trenton, N. J.
Tulsa, Okla.
Worcester, Mass.
York, Pa.
Youngstown, Ohio
CLEVELAND ELECTRIC TRAMRAIL
DIVISION OF
THE CLEVELAND CRANE & ENGINEERING CO.
WICKLIFFE, OHIO



Philadelphia speed reducer with new welded rolled steel housing

of these lathes is shown in the accompanying illustration.

Among several improvements, the builder calls particular attention to a new method of guiding and holding the carriage on the bed. The carriage is guided by large Vees at front and back and in addition a wide flat bearing is placed under the bridge where the tool pressure comes.

The gibs are located in the center of the bed on square guides which not only are effective in preventing the carriage from lifting under the heaviest cuts, but also in adding materially to the strength of the bridge. The bed is of four wall design and is cast in an alloy steel mixture running from 0.50 to 0.60 carbon, with nickel content of about 1 per cent.

Improved Headstock

The headstock is fully equipped with herringbone gears and with antifriction bearings. All bearings are adjustable from outside the headstock without necessitating removal of the cover. Lubrication is by a force feed oil system. The exceptionally large spindle and all drive shafts are made from alloy steel forgings. The unique direct reading 16-speed control, which is one of the features of these lathes, makes possible sudden changes in spindle speed without danger of damage to machine, tools or work.

The apron is of heavy, double wall design and equipped with antifriction bearings. It has patented nonrevolving snap lever controls which can be thrown out by a mere flip of the finger, yet will not slip out of engagement under the heaviest loads. A lever on the apron provides reverse to all feeds without reversal of the spindle. The gear box is dust and chip proof and is lubricated by a central oiling system.

◆

Adopts Steel Housings for Speed Reducing Units

Philadelphia Gear Works Inc., Erie avenue and G street, Philadelphia, now offers welded rolled steel housings as standard equipment on its speed reducers. One of these steel housed reducers of right-angle variety is shown in the accompanying illustration, the neat lines of the design being clearly apparent.

Strength 75 to 100 per cent in excess of that of cast iron housings is claimed by the maker. It is pointed out that the new housing effectively protects the fine internal mechanism from damage in steel mills, etc., wherein dropped ingots, swinging beams and blows from other heavy objects practically are unavoidable.

In addition to extra strength, these new housings seal the mechanism completely against the penetration of dust, dirt, moisture, and acid fumes.

◆

Riveters Are Designed to Fabricate Steel Wheels

Hanna Engineering Works, 1765 Elston avenue, Wicker Park station, Chicago, has developed two single-purpose riveters for use in fabricating rolled steel wheels used on agricultural implements. Both of these machines are shown in the accompanying illustration.

The riveter shown at the left is used first. It attaches the spokes to the rim by two ⅜-inch cold rivets which are driven simultaneously by duplex dies under 50-ton pressure. Prior to each stroke, the jaw must enter between two spokes and then drop behind the rim flange.

To bring this about, the wheel is rotated and moved to and from the riveter, and the jaw is moved up and down. A roller nest truck provides for the wheel movement and a pneumatic jack swings the riveter on trunnions to provide vertical movement of the jaw. Nest rollers and wheels of the truck are ball bearing mounted. The jack is controlled by a conveniently located poppet valve. Control of the riveter dies is by a heel-operated valve conveniently located on the floor.

Attaching Spokes to Hub

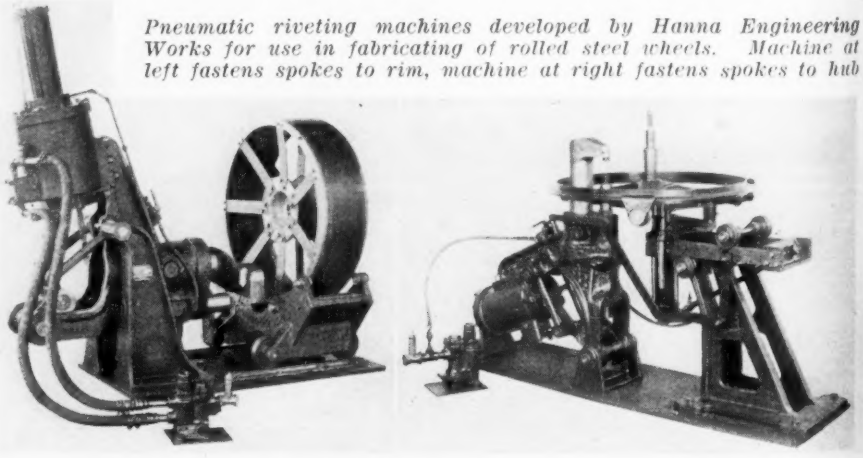
The machine shown at the right then is used to attach the spokes to the hub. As a preliminary, the riveter jaw must enter selectively into each one of the openings bounded by the rim, two spokes and the hub. Then the wheel must be moved toward the riveter so that the jaw hooks behind or above the hub flange. All of these movements are accomplished by means of a carriage in which the wheel lies horizontally.

The wheel is indexed in this carriage so that its openings successively are brought in line with the riveter jaw. It is raised and lowered by means of a pneumatic jack mounted in the carriage. The carriage itself moves horizontally on four wheels mounted in a stationary stand, being actuated through a bell crank handle.

The vertical movement under the influence of the jack serves also to nest the preformed heads of the rivets into the jaw die and to clamp the spoke firmly against the hub. The rivets are placed conveniently from above well in advance of heading, thus serving to align the parts.

The wheel rim is forced into a ring which rounds it up, and locates it centrally with the hub, normal to

Pneumatic riveting machines developed by Hanna Engineering Works for use in fabricating of rolled steel wheels. Machine at left fastens spokes to rim, machine at right fastens spokes to hub



the hub axis, thus insuring a true running finished wheel. This ring runs on wheels mounted on the ends of radial arms of a spider at the center of which is a spindle post carrying the hub. The operator easily is able to rotate the wheel, and to manipulate the carriage handle as well as the valves, all from a convenient position close by the riveting dies.

The riveting unit embodies the toggle and lever principle featured by this company. As the die approaches the work its movement is rapid, then its speed decreases gradually until it enters the area of uniform pressure. Thus where the work is lightest, the speed is greatest. As the rivet head takes form the pressure increases to a maximum which is maintained over several inches of piston travel, which takes care of ordinary variations in rivet lengths and in plate thickness.

◆

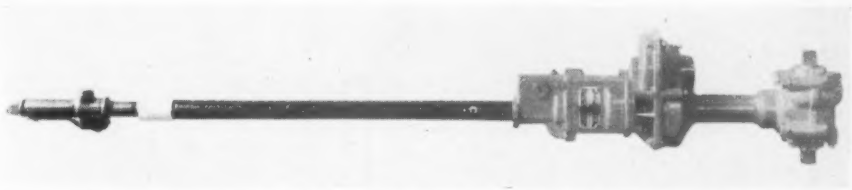
Rotary Pneumatic Wrench Sets or Removes Nuts

Chicago Pneumatic Tool Co., 6 East Forty-fourth street, New York, announces the development of a powerful automatic tool for use in tightening nuts on, and removing nuts from bolts up to and including 1¼ inches in diameter. The new tool, shown in the accompanying illustration, is recommended by the maker for use on flexible staybolt caps, cylinder and valve chamber head nuts, dome nuts, front end nuts, frame nuts, etc.

Power is furnished by a compact rotary air motor, and the speed when running light is 130 revolutions per minute. Sockets are a snap fit on the spindle, which assures quick, easy replacement when a different size socket or reverse motion is required.

Seven standard hexagon sockets, ranging from 1 1/16 to 2 3/16 inches across the flats, and six standard square sockets ranging from 7/8 to 2 inches across the flats, are available from stock. Also, 15 sizes of special hexagon and four sizes of special square sockets can be obtained from Snap-on Tool Co., maker of the sockets. A ⅝-inch chuck adapter is used with sockets up to 1 1/17-inch hexagon and 1 9/16-inch square, inclusive. Larger sockets are fastened directly on the spindle.

The tool has overall length of 7 7/32 inches, distance from its side to center of spindle is 2 3/16 inches and its operating weight is approximately 48 pounds.



Powerful air-operated wrench designed by Chicago Pneumatic Tool Co. for quick setting or removal of nuts of various sizes and kinds

◆

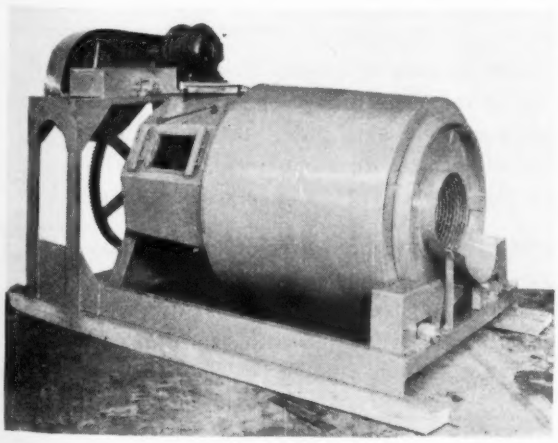
New Burnishing Barrel Has High Productive Speed

N. Ransohoff Inc., Cincinnati, has developed an improved type of burnishing barrel which is said to cut down materially on the time required to poduce a satisfactory finish. One of these barrels is shown in the accompanying illustration.

The barrel utilizes steel balls as a burnishing medium and is so constructed that rehandling of the balls is eliminated. Work is loaded through a door in the periphery and during the burnishing operation the barrel turns continuously in one direction. At the completion of the process, the barrel is rotated in the opposite direction, which is accomplished by throwing a motor reversing switch.

This automatically discharges the work through a screen at the center of the barrel, work coming out at one end of it while the burnishing balls pass through the perforations after which they are retained in a cone which surrounds the screen. As soon as all work has been discharged, the machine is ready for another load. As soon as loaded and the cover bolted down, the barrel again is run in the burnishing direction—this causing the balls to return automatically to the burnishing compartment.

The maker cites operating tests as proof that this new machine has at least two and a half times the productive capacity of older models. Operating on a schedule of one hour burnishing periods it handled eight loads in nine hours, as against six loads in the case of the older type of equipment. Incidentally it took only five minutes to discharge and reload, about one-sixth the time formerly required.



Ball type burnishing machine improved by N. Ransohoff Inc. so as to cut down time required for charging and discharging and to increase the speed of satisfactory burnishing action

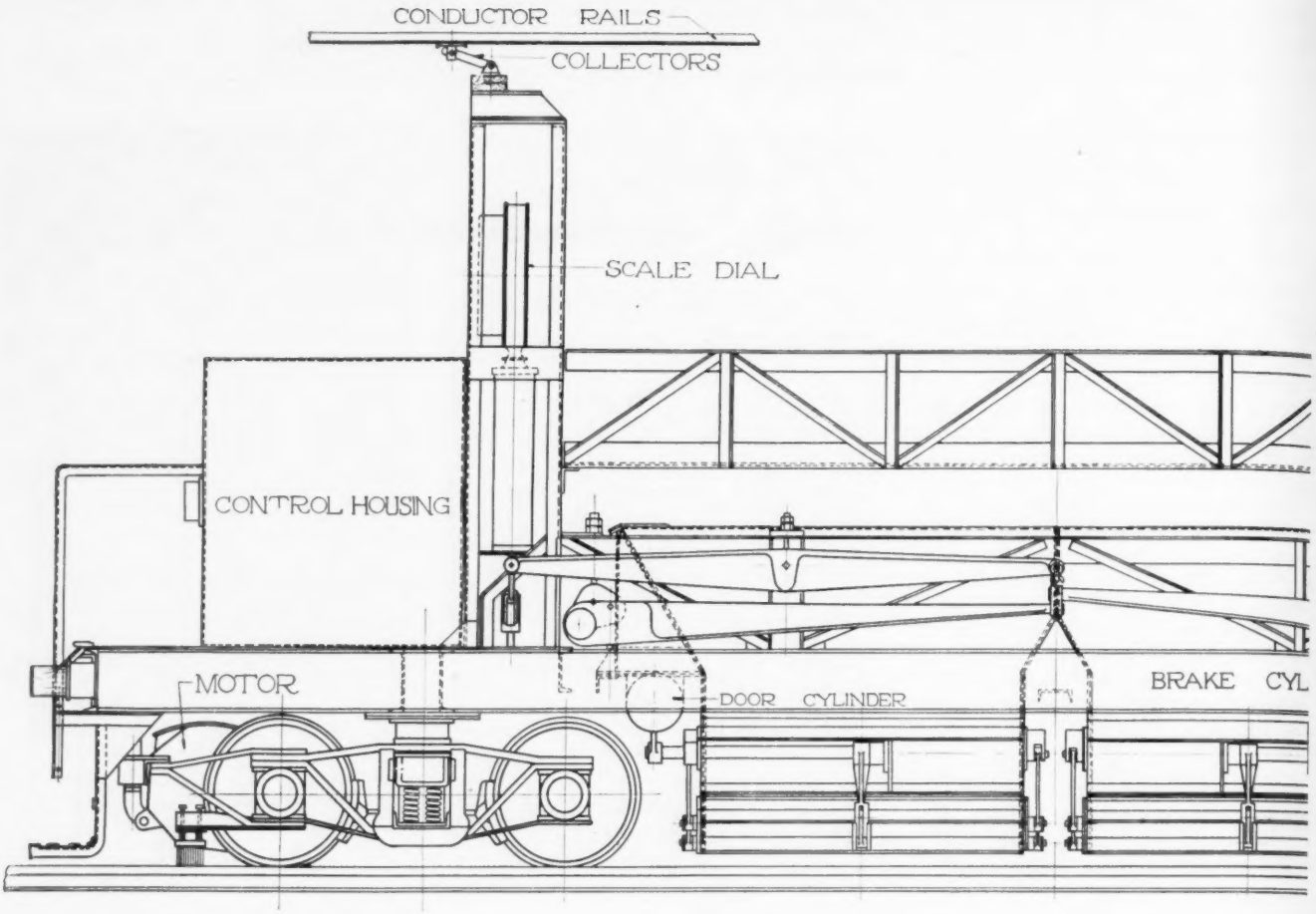
◆

Generators of Low Voltage For Electrolytic Work

Columbia Electric Mfg. Co., 1292 East Fifty-third street, Cleveland, announces a new line of direct current generators of low voltage type, designed especially for electrolytic work. These machines are furnished in standard voltages of 12, 24 and 50 kilowatt capacities ranging from ½ to 100.

In general design, construction and exterior appearance these machines are similar to the standard electroplating generators manufactured by this company. Among other features, the machines have rolled steel frames butt welded electrically, bracket bearing construction, double row roller bearings, and interpoles.

These generators are furnished either with self-excited or with separately excited fields. Designs for special purposes also can be carried out along similar lines.



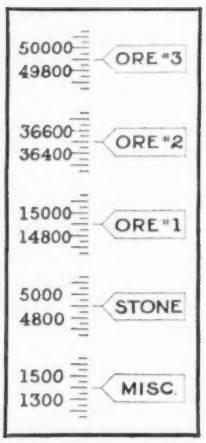
ANNOUNCING . . . The New McKee

A SERIES of important new features to meet exacting requirements is introduced into blast furnace charging practice by the new McKee double-compartment scale car. Chief among the new features are:

1. *Welded construction.*
2. *The use of specially designed Toledo scales.*
3. *Twenty-five ton capacity.*
4. *A modern recording system.*
5. *Lower initial cost.*
6. *Decreased operating expense.*

Welded Construction..The welded construction considerably reduces initial cost. It permits a decrease in weight with an increase in stiffness, rigidity and greater stability. Furthermore, there are fewer ledges or horizontal surfaces to gather dirt and dust. The whole car has a cleaner, more finished appearance.

Toledo Scales. . The scales are all-welded lever construction providing minimum weight with maximum rigidity. Spare parts fit accurately and are easily and quickly obtainable from the Toledo Scale Company, which uses precision methods in manufacturing production quantities. There is no necessity for fitting new pivots, as all parts are interchangeable.



The scale dial and recorder is 28 inches in diameter at the reading line and 34½ inches outside. Markers for charge increments are attached to the outside of the glass case, making it unnecessary to open the case or expose its mechanism to the dust-laden atmosphere. Because of the dust-proof case with glass and increment markers close to the pointers, errors in reading, due to parallax, are minimized.

Capacity..Cars are designed for any capacity to meet owner's specifications. The capacity of the scales and dial illustrated in above drawing is 50,000 pounds with 50 pound graduations.

Iron Output, Steel Operations Down

July Blast Furnace Figures Lowest Since 1921—Current Steelworks Rate Back to 30 Per Cent—Structural Requirements Still Lead, but Are Smaller

PIG iron production figures for July represent a throw-back to the fall and winter of 1921. The number of stacks left in blast at the close of July was the smallest since August of that year; the daily rate of output in July was the lowest since October that year, and the total tonnage for the month finds its backstop in November, 1921.

Actual daily output last month was 46,470 gross tons, down 14.9 per cent from 54,599 tons in June. The total for the month was 1,440,576 tons, representing a loss of 12 per cent from 1,637,998 tons in the former month. And the output for the seven months this year is off 40 per cent from the comparable period of 1930—12,538,698 tons, against 20,943,055 tons. So far this year pig iron production is a little less than half of the 25,420,048 tons made in the first seven months of 1930. With a net loss of nine stacks in July, 82 out of 303 remained active at the close of the month.

This decline in pig iron output foreshadows an equally discouraging report for July production of steel ingots when figures become available next week. Steelworks operations at the beginning of August are even undercutting the low July rate.

After making the first rally in four months—to 32 per cent last week—the rate of operations has relapsed to 30 per cent. The Youngstown district did not remain long at 42 per cent; this week it is back to 33. Cleveland is down 6 points to 29 per cent; Buffalo is lower by 10 points at 40 per cent; Pittsburgh is off 1 to 30 per cent; eastern Pennsylvania also has lost 1 point and is at 33 per cent. Chicago has advanced 1 point to 30 per cent, and Birmingham is ahead 5 points to 40 per cent.

Structural steel continues to be the leader in demand. August is likely to see the closing of 45,000 tons for the Chicago postoffice, and 58,700 tons for a bridge for the New Orleans public belt railroad. Fresh inquiry this week totals nearly 31,000 tons, and awards amount to 15,827 tons, compared with 37,732 tons last week.

August is expected to mark the low point of the summer in production of passenger cars and trucks, with Ford's principal manufacturing plant down, and others also in the midst of the vacation season. Detroit, however, is confident there will be an improvement in September.

Railroad requirements for steel are at the minimum necessary for the reduced rate at which the roads are operating; in point of maintenance work the majority of them are estimated to be 25 per cent subnormal. Large line pipe orders that featured the market in June and early July have been worked out, and new propects are smaller and less frequent. Favorable crop reports from the South and Southwest point to better requirements for implements, wire and wire products in the fall.

Demand for scrap is less brisk. Scarcity of some grades tends to promote strength, and prices are holding at the better levels. Two more blast furnaces have been blown out this week, though pig iron producers look for improvement in shipments the latter part of the month in anticipation of September requirements.

Blast furnaces and steel plants are determined not to overstock with iron ore. The movement from the Lake Superior district this season is only 44 per cent of that in the comparable period last year, and indicates that less than 30,000,000 tons will be brought down, compared with 46,500,000 in 1930.

STEEL's composite prices are unchanged this week; that for iron and steel products stands at $31.06; for finished steel $48.72, and for steelworks scrap, $8.87.

Composite Market Averages

	This Week (Aug. 5)	Last Week (July 29)	One Month Ago (July, 1931)	Three Months Ago (May, 1931)	One Year Ago (Aug., 1930)	Ten Years Ago (Aug., 1921)
Iron and steel Composite	$31.06	$31.06	$31.05	$31.37	$32.99	$35.99
Finished Steel Composite	48.72	48.72	48.68	49.02	51.72	57.09
Steelworks Scrap Composite	8.87	8.87	8.70	9.31	12.62	10.25

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. **Finished Steel Composite**:—Plates, shapes, bars, sheets, hot strip, nails, wire, tin plate, pipe. **Steelworks Scrap Composite**:—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	August 5, 1931	July, 1931	May, 1931	Aug. 1930
PIG IRON				
Bessemer, del. Pittsburgh	$18.26	18.26	18.26	20.26
Basic, valley	17.00	17.00	17.00	18.00
Basic, eastern del. eastern Pa.	16.75	16.75	17.00	18.00
No. 2 foundry, del. Pittsburgh	18.26	18.26	18.26	19.26
No. 2 foundry, Chicago	17.50	17.50	17.50	17.50
*Southern No. 2, Birmingham	12.00	12.00	12.00	14.00
**No. 2X, Virginia furnace	18.25	18.25	18.25	18.25
**No. 2X, Eastern del., Phila.	17.76	17.76	17.76	19.76
Malleable, valley	17.00	17.00	17.00	18.50
Malleable, Chicago	17.50	17.50	17.50	17.50
Lake Superior, charcoal, del. Chi.	27.04	27.04	27.04	27.04
Gray forge, del. Pittsburgh	17.63	17.63	17.63	18.63
Ferromanganese, del. Pittsburgh	89.79	89.79	89.79	103.79

*1.75 to 2.25 silicon. For local delivery. Northern shipments based on $11, Birmingham. **2.25 to 2.75 silicon.

COKE				
Connellsville furnace, ovens	2.40	2.40	2.45	2.50
Connellsville foundry, ovens	3.25	3.25	3.25	3.50
SEMIFINISHED MATERIAL				
Shee bars, open-hearth, Youngs.	29.00	29.00	29.75	31.00
Sheet bars, open-hearth, Pitts.	29.00	29.00	29.75	31.00
Billets, open-hearth, Pittsburgh	29.00	29.00	30.00	31.00
Wire rods, Pittsburgh	35.00	35.00	35.00	36.00

	August 5, 1931	July, 1931	May, 1931	Aug. 1930
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.65	1.65
Steel bars, Chicago	1.70	1.70	1.75	1.75
Steel bars, Philadelphia	1.89	1.89	1.94	1.94
Iron bars, Chicago	1.70	1.70	1.80	1.80
Shapes, Pittsburgh	1.60	1.60	1.65	1.65
Shapes, Philadelphia	1.76	1.76	1.76	1.66
Shapes, Chicago	1.70	1.70	1.75	1.75
Tank plates, Pittsburgh	1.60	1.60	1.65	1.65
Tank plates, Philadelphia	1.80½	1.80½	1.85½	1.80½
Tank plates, Chicago	1.70	1.70	1.75	1.75
Sheets, No. 10 blue anneal., Pitts.	1.85	1.85	1.85	1.95
†Sheets, No. 24, hot, ann., Pitts.	2.40	2.40	2.15	2.50
Sheets, No. 24, galvan., Pitts.	2.90	2.90	2.80	3.10
Sheets, No. 10 blue anneal., Chi.	2.00	2.00	2.00	2.15
†Sheets, No. 24, hot, ann., Chi.	2.55	2.55	2.40	2.60
Sheets, No. 24 galvan., Chi.	3.05	3.00	2.95	3.20
Plain wire, Pittsburgh	2.20	2.20	2.20	2.30
Wire nails, Pittsburgh	1.90	1.85	1.90	2.05
Tin plate, per base box, Pitts.	5.00	5.00	5.00	5.25

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	10.75	10.50	11.25	15.20
Heavy melting steel, eastern Pa.	8.75	8.25	9.50	12.65
Heavy melting steel, Chicago	8.50	8.50	8.65	12.00
No. 1 wrought, eastern Pa.	10.00	10.00	11.00	14.25
No. 1 wrought, Chicago	8.25	8.25	8.40	11.25
Rails for rolling, Chicago	10.50	10.50	11.15	14.50

Sheets

New Prices Holding, but Volume of Business Is Light—More Valley Mills Now Active

SHEET PRICES, PAGE 65

Pittsburgh—Sheet prices are well maintained on what new business is being received although the number and volume of orders lack improvement. Shipments of material bearing old prices were scheduled to be completed July 31, but specifications against old contracts were sufficiently heavy to tide some buyers over for several weeks in this month. Practically no divergences from the official market are noted, with hot rolled annealed sheets quoted 2.40c, Pittsburgh, galvanized 2.90c, blue annealed 1.85c and autobody 3 10c. Operations continue irregular but average slightly higher at 35 to 40 per cent.

New York—Sheet business is particularly dull. One leading seller reports the poorest week this year, one that contrasted with the best in more than a year and a half early in July. Prices are steady at the new levels, with the expectation now that they will not be tested before fourth quarter contracting.

Philadelphia—Demand is devoid of substantial tonnage and prices are unchanged. No immediate improvement is anticipated.

Youngstown, O.—Some of the smaller independent mills in this district which were idle the past week or ten days, resumed Monday, with prospects for operating the remainder of this week. Sheet orders are restricted largely to immediate needs and specifications coming to mills here this week are not encouraging. Some fair business in autobody sheets continues to come in, enabling makers of this grade to operate around 50 per cent. Mills are holding firmly to the new classification bases and prices therefore appear steadier than in either first or second quarters.

Cleveland—Sheet producers do not expect a real test of the new prices to develop until September, and possibly later. On the bulk of miscellaneous orders for small amounts which have developed since Aug. 1 when the new classifications went into effect prices have been maintained. Specifications on contracts are slow.

Chicago—Several large sheet fabricators placed sizable specifications in more than carlot quantities just before Aug. 1, but new business, extremely light in character, is well held at the new price classifications. Galvanized sheets at 3.05c, delivered Chicago, are holding firm. No. 24 hot rolled carried the 2.55c, Chicago price, on several sales made last week. No. 10 blue annealed is 1.85c, Chicago, on light demand.

Cincinnati—Curtailment of automobile production is reflected in district sheet mills, with tapering demand. Pressure on prices has been relieved, some interests reporting quotations are steadier than for many months.

Birmingham, Ala.—Sheet production has been increased slightly. Business from other districts is reported. Operations at sheet mills in this district are above 50 per cent.

St. Louis—The volume of July sheet business fell slightly below that of June. The outlook for August is fair, the leading local producer reporting orders sufficient to run during the first half of this month at the same rate as in July. Prices are firm.

Standards Accepted

Washington—Since the department of commerce began developing simplified practice recommendations 10 years ago, more than 10,000 different associations and firms have accepted these recommendations, the department states. There are now in effect more than 120 recommendations, and it is claimed that the savings due to economies exceed $250,000,000.

Current Finished Steel Prices

Prices in cents per pound unless otherwise stated

Steel Sheets

HOT ROLLED No. 10

Pittsburgh base	1.70c
Gary, Ind. Harbor, base	1.80c
Chicago, del.	1.85c
Philadelphia, del.	1.99c
Birmingham, base	1.85c
St. Louis, del.	2.60½c

BLUE ANNEALED No. 9-10

Pittsburgh, base	1.85c
Chicago, district mills	1.95c
Chicago, delivered	2.00c
Philadelphia, del.	2.14c
St. Louis, delivered	2.20½c
Birmingham	2.00c to 2.05c
San Francisco, c.i.f.	2.50c

HOT ROLLED ANNEALED No. 24

Pittsburgh, base	2.40c
Gary, Ind. Harbor, base	2.50c
Chicago, del.	2.55c
Philadelphia, del.	2.69c
Birmingham, base	2.55c
St. Louis, del.	2.75½c

GALVANIZED No. 24

Pittsburgh, base	2.90c
Gary, Ind. Harbor, base	3.00c
Chicago, del.	3.05c
Philadelphia, base	3.19c
Birmingham, base	3.05c
St. Louis, del.	3.25½c

AUTOMOBILE No. 20

Pittsburgh, base	3.10c

FURNITURE

Pitts., No. 10 heavy	2.75c
Pitts., No. 20 light	3.35c

TIN MILL BLACK No. 28

Pittsburgh, base	2.55c to 2.65c
Gary base	2.65c to 2.75c
St. Louis, del.	2.90½c

HEAVY COLD ROLLED No. 10

Pittsburgh base	2.35c
Gary, Ind. Harbor, base	2.45c
Chicago, del.	2.50c
Philadelphia, del.	2.64c
St. Louis, del.	2.70½c

COLD ROLLED No. 20

Pittsburgh, base	2.95c
Gary, Ind. Harbor, base	3.05c
Chicago, del.	3.10c
Philadelphia, del.	3.24c
St. Louis, del.	3.30½c

Tin and Terne Plate

Prices per 100 pound box Pittsburgh

Tin plate, coke base	$5.00

Gary, Ind., base 10 cents higher.

Long ternes, 24, unassorted, lb.	3.15c

Wire Products

(To Jobbers-Merchant Trade)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.90 and 2.00
Cement coated nails	1.90 and 2.00
Galvanized nails	3.90 and 4.00

(Per pound)

Polished staples	2.25c and 2.35c
Galvanized staples	2.50c and 2.60c
Barbed wire, gal.	2.45c and 2.55c
Annealed fence wire	2.25c and 2.35c
Galvanized wire	2.70c and 2.80c

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Joliet, DeKalb, Waukegan, Ill., Anderson, Ind., Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, Mass., $2 higher; Fairfield, Ala., $3 higher.

Rivets

Struc. c.l., Pitts.-Cleve.	2.75c
Struc., c.l., Chicago	2.85c
7/16-in. smaller, Pitts.	70, 10 and 5 off
Chi., Cleve.	70 to 70, 10 and 5 off

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, del.	1.80½c
New York, delivered	1.88c
Boston, delivered	2.00c
Chicago, base	1.70c to 1.80c
Cleveland, base, for railroads	1.65c
Lackawanna, N. Y., base	1.75c to 1.80c
Birmingham, base	1.75c to 1.80c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f	2.00c
St. Louis, del.	1.95½c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, del.	1.76c
New York, del.	1.85½c
Boston, del.	1.98½c
Chicago, base	1.70c to 1.80c
Cleveland, delivered	1.78½c
Lackawanna, N. Y., base	1.75c to 1.80c
Birmingham base	1.75c to 1.80c
Pacific Coast, c.i.f.	2.05c to 2.15c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham base	1.75c to 1.80c
Lackawanna, N. Y., base	1.70c to 1.75c
Pacific Coast, c.i.f.	2.05c
Detroit, base	1.75c
Cleveland, base, local del.	1.70c
Cleveland base, out. del.	1.65c
Philadelphia, del.	1.89c to 1.94c
New York, del.	1.93c
Boston, del.	2.00c
Pittsburgh, cold finish	1.85c
Pittsburgh, forg. qual.	1.90c

RAIL STEEL

Chicago Heights	1.60c
Eastern mills	1.50c to 1.55c
Pittsburgh	1.30c to 1.35c

IRON

Chicago, base	1.70c to 1.80c
New York, delivered	1.93c
Philadelphia, delivered	1.89c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pitts., billet cut lengths	1.75c
Stock lengths, mill	1.60c
Chi., billet	1.60c to 1.80c
Chi., rail steel	1.60c to 1.65c
Chi., rail steel, bridge and culvert	1.60c to 1.65c
Philadelphia, cut lengths	2.14c
Cleveland, cut lengths	1.95c to 2.05c

Cold Finished Bars, Shafting

Base, Pittsburgh, Chicago, Buffalo and Cleveland	2.10c
Shafting, turned and ground, mill	2.45c to 2.90c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel

Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot strip	19c	20.5c	23c	28c
Cold strip	28c	29.5c	32c	37c

Carbon 0.12 and under; no nickel. A has chrome 15% and under, B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to $6.75 off
Carloads, Chicago dist.	7.00 to 7.50 off

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bars, 2.65c, mill

S.A.E.	Alloy Diff.	S.A.E.	Alloy Diff.
2000	0.25	1.25-1.75 Ni.	1.05
2100	0.55	5100 .80 - 1.10 Cr.	0.45
2300	1.50	51.00 Cr. spring	0.20
2500	2.25	6100 bars	1.20
3100	0.55	6100 Spring	0.95
3200	1.35	Cr., Ni., Van.	1.50
3300	3.80	Carbon Van.	0.95
3400	3.80	9250 (flats)	0.25
4100 .15 to .25 Mo.	0.50	9250 (rds.,sq.)	0.50
4600 .20 to .30 Mo.			

Strip, Hoops Bands

Hot strip, to 6-in., Pitts.	1.65c
Do, 6 1/16 to 24-in., Pitts.	1.55c
Hot strip, bands 6 in. and under, Chicago	1.75c
Do. 6 1/16 to 24 in.	1.65c
Cooperage hoop, Pitts.	1.70c to 1.80c
Do, Chicago	1.85c to 1.95c
Cold rolled strip, Pitts., Cleve., 3 tons, over	2.15c
Worcester, 3 tons, over	2.30c

Rails, Track Material

Standard bess. and open hearth rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$22.00 to $26.00
50 to 75	20.00 to 24.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$34.00
Light rails, Chicago	$36.00
Angle bars, Chi. base	2.75c
Spikes, railroad, mills	2.70c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.70c
Spikes boat, barge, Pitts.	2.90c
Spikes, railroad, Chi.	2.80c
Track bolts, Pitts., steam roads	3.80c
Do. standard, jobbers	73 off list
Track bolts, Chicago	3.80c
Tie plate, mills	$39.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi.

Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 73 and 10 off

Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.

Eagle list ..... 73 and 10 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 73 and 10 off

Tire bolts, 60, 10 and 10 off.

Stove bolts, 80, 10, 10, 5 off in pkgs.; 80, 10, 5, 2½ off in bulk.

Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 73 and 10 off

HEXAGON CAP SCREWS

Milled ..... 80-10-10-5 off

Upset 1 in. diam. and smaller ..... 85-10 off

SQUARE HEAD SET SCREWS

Milled ..... 80-5 off

Upset 1 in. and smaller ..... 80-10-5 off

Upset, larger than 1 in. ..... 80-5 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh 2.50c

Do, less carloads, 5 kegs or over, 2.75c; less than 5 kegs 2.90c.

Chain, BB, BBB, 9/16-1½ in.	33 1/3 off
Sheet piling, Pitts.	1.90c

Bars

Price Maintains Stability and Consuming Rate Varies Little—Small Lot Buying Rules

BAR PRICES, PAGE 65

Chicago—Incoming specifications for alloy and soft steel bars are at the weekly rate of the past month to six weeks. Automobile production schedules are declining, except some expansion shown in Studebaker and Plymouth commitments, and a steady rate from Chevrolet. Implement manufacturing interests have confidence in buying in the fall, and expect several attractive Russian orders. Mills continue to receive good specifications from road machinery makers. Bar prices are based on 1.70c, Chicago.

New York—Commercial steel bars are moving generally at 1.60c, Pittsburgh, with tonnage light. While the close of July showed a rather sharp dip, business for that month, according to leading sellers, was only slightly under June.

Philadelphia—Steel bars are quiet and firm at 1.60c, Pittsburgh, and common iron bars are dull but steady at 1.60c, Pittsburgh.

Pittsburgh—Steel bar specifications remain quiet and off slightly from the July rate. Automotive needs are near the year's lowest level and miscellaneous demand also is tending downward. New business is insufficient to give the market a thorough test, but 1.60c, Pittsburgh, generally is applied on new business.

Youngstown, O.—Price stability on common steel bars is becoming more apparent but orders now being placed are practically all for small lots and carload buying today appears the rule and on such business 1.65c, Pittsbuargh, is asked. The recent bar price readjustment has resulted in a few higher-priced contracts being written down. Bar mills here are about 30 per cent active.

Cleveland—Practically all lines of consumers are taking a little material, but sales are tending to diminish, especially those made to the automotive industry. The Cleveland base is held at 1.70c for local delivery. For outside shipment 1.65c, base, Cleveland, or 1.60c, Pittsburgh, is quoted, depending on delivery point.

Tin Plate Output Makes Slight Advance

Tin Plate Prices, Page 65

Pittsburgh—Tin plate activity is steadier following a sharp drop in operations a week ago. Production is slightly higher at 55 to 60 per cent, but there is no indication of a sustained advance over coming weeks. Specifications continue to decline gradually while reports on vegetable crops offer little encouragement for an increase over earlier estimates as to vegetable packs.

Philadelphia—Exceedingly warm weather has resulted in improved specifications for tin plate for bottle caps and similar products. A leading jobber reports July sales approximately the same as those of June and May, respectively. Prices are steady.

Cold-Finished Bars Move Only in Small Lots

Cold Finished Prices, Page 65

Pittsburgh — Cold-finished bar specifications are for small lots only and new business is dull. Declining operations in automotive production are expected to restrict demand during the larger portion of August although some buying for September requirements is expected later in the month. The market generally continues at 2.10c.

Cleveland—Demand for cold-finished steel bars continues restricted to small lots for early shipment. Contract shipments are being released at 2.00c, while 2.10c, Cleveland, applies on new business.

Burch Plow Corp., Crestline, O., has changed its name to Burch Corp.

Plates

Demand Restricted Mainly to Small, Miscellaneous Orders—Tank Work Is Quieter

PLATE PRICES, PAGE 65

Pittsburgh—Leading plate consumers show no increase in their requirements, and miscellaneous orders which make up the bulk of demand continue slow. Several sizable barge inquiries are pending but closing continues to be deferred. Little business is appearing from car builders and tank work is quiet. The market usually is 1.60c, Pittsburgh.

Philadelphia—The market is quiet and unchanged at 1.70c, base, Coatesville, Pa. An order for 2200 tons of plates and sheets has been placed and sheets has been placed for a gas holder for the United Gas Improvement Co., Philadelphia.

New York—Plate business picked up last week, orders coming out from miscellaneous sources. The market is 1.70c, Coatesville, Pa. Pending are 300 to 400 tons of tanks for the radio city development and several hundred tons for the Thirtieth street viaduct of the New York Central on which bids open this week. Electric Boat Co., Groton, Conn., is expected to award shortly 400 tons for a submarine. Five hundred tons of tanks for Standard Oil Co. of New Jersey have been withdrawn. The tanks originally were scheduled for erection at Burlington, N. J.

Lock Joint Pipe Co., Ampere, N. J., was low on approximately 20,575 feet of 54-inch pipe for the Passaic Valley Water commission, Paterson, N. J., indicating that this pipe will be made of concrete. The alternate called for about 2000 tons of steel. About 700 tons of tank work is being figured here for Argentina. Action on 300 to 400 tons of 60-inch pipe for the city's Ward island development is expected within a fortnight.

The Bronx Waterworks Corp., Bronx, New York, is lowest of 13 bidders on 72-inch and 48-inch riveted pipe, equivalent to 700 tons of plates, with valves and auxiliaries, for the Bronx.

Cleveland—The market shows a slight improvement in the volume of inquiries and orders for small lots from a diverse line of consumers, but important tonnages are lacking. Boiler shops are specifying fairly well. The 2500 tons for the Belvoir boulevard water main, Cleveland, remain pending.

Considerable demand for piling arises in shore protection work along Lake Erie, three projects requiring 1000 to 3000 tons each being active. Plates for railroad work are 1.65c, base, Cleveland. For other classes of plates the market is 1.60c, Pittsburgh.

Chicago—Awards were in small lots during the week, and no new outstanding tonnages are in sight. Tank fabricators, after some weeks of fair operatign schedules, are settling into inactivity. No new tank

requirements from the Southwest and other outlying districts are reported pending this week. Shipments to the Milwaukee plate fabricator are curtailed in anticipation of a shutdown for an unstated period.

Contracts Pending

2500 tons, water main and incidental work, Belvoir boulevard, Cleveland; Curro & Whitaker, contractors; 54-inch.

900 tons, steel piling, Pymatuning reservoir dam, Jamestown, Pa., bids open by Pennsylvania state water power and research board at Harrisburg, Aug. 15.

500 tons, tanks, Standard Oil Co. of New Jersey, Burlington, N. J., inquiry withdrawn.

300 to 400 tons, tanks for radio city development, New York.

300 tons, Thirtieth street viaduct for New York Central, New York, bids Aug. 7.

Obituaries

(*Concluded from Page* 31)

Gladstone furnace, Gladstone, Mich., for Cleveland-Cliffs Iron Co., Cleveland, until it was abandoned in 1925, died July 21 at Gladstone. Born in Chicago in 1857, Mr. Slining located in the upper peninsula of Michigan in 1877. He was first identified with Jackson Iron Co., Fayette, Mich. After being transferred to Negaunee, Mich., for that company, he located in Gladstone in 1895 and built the first furnace in that vicinity for Cleveland-Cliffs Iron Co. He was associated with the late August Farrell in his work at Kipling furnace. In 1901 and 1902 he built the Marquette furnace which still is in operation. He retired from active work in 1926.

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Harry P. Shriver, vice president and production manager of Kennedy Mfg. Co., Van Wert, O., died recently.

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William Stewart Lloyd, for half a century engaged in the steel business in Boston, died July 31, after a short illness, at Brookline, Mass.

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Charles Frederick Sterns, 59, vice president and treasurer, Sterns Electrical Equipment Co., Buffalo, died July 23. He had been associated with the business bearing the family name for more than 30 years.

□ □ □

Col. W. M. Gartshore, 77, former president and general manager, McClary Mfg. Co., London, Ont., died July 26. Born at Dundas, Ont., he entered his father's foundry there but later became connected with Toronto Car Wheel Co. In 1876 he entered the McClary company service, remaining about half a century and rising to the presidency.

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Joseph A. Doyle, auditor of the Jones & Laughlin Steel Corp., Pittsburgh, died at his residence in Beaver, Pa., Aug. 2 after a brief illness. Mr. Doyle had been connected with Jones & Laughlin 42 years, having entered their employ in 1889 as a clerk in the pay office of the South Side works, and advancing steadily through various responsible positions in the Pittsburgh and Aliquippa works to that of auditor of the corporation in 1919.

□ □ □

Harry M. Ream, 54, treasurer of Steel Shot & Grit Co., Amesbury, Mass., Globe Steel Abrasive Co., Mansfield, O., American Steel Abrasives Co., Galion, O., and Kahn Pangborn Co., Pittsburgh, died at his Pittsburgh home July 29. He also was sales manager of Pittsburgh Crushed Steel Co., Pittsburgh. Burial took place at Zanesville, O., his birthplace.

□ □ □

Charles A. Morrow, salesman for the Youngstown Pressed Steel Co. and son-in-law of A. N. Flora, vice president, National Association of Flat Rolled Steel Manufacturers, Cleveland, was killed in an automobile accident near Rootstown, O., July 29.

Railroads

Only Industrial and Mine Cars Are Awarded—August Track Material Needs Continue Low

TRACK MATERIAL PRICES, PAGE 65

New York—Car awards continue light, with 30 hopper bodies and some repair work for Carnegie Steel Co., and 525 mine cars for the Inland Steel Co. among outstanding contracts. Domestic freight cars actively pending are slightly in excess of 100.

New York, New Haven & Hartford is inquiring for 600 tons of 80-pound tie plates and 500 kegs of spikes.

Pittsburgh — Specifications from railroads usually call for only small lots, with little change noted in total business. July orders approximated those of June. Releases on considerable tonnage still are being deferred and the prospects for improved activity continue indefinite. New inquiry is lacking.

Chicago—Releases of rails to western mills continue to be steady at what is apparently being established as a minimum rate. Track accessory shipments on old contracts have improved somewhat over the last week with quick deliveries specified. New track accessory sales are light, being less than 750 tons in all. Light rails are in a quiet market. Railroad repair shops continue with some of their number shut down completely, others on reduced forces. Car purchasing is nil, though award is still deferred on about 3000 tons of finished steel for 500 underframes for the Northern Pacific. No pending rail needs are before the market, though it is possible several carriers may have to buy late in the fall.

Car Orders Placed

Canfield Oil Co., repairs to one tank car, to Pressed Steel Car Co., Pittsburgh.

Carnegie Steel Co., 30 hopper bodies and repairs to 30 H-21 hoppers, to Greenville Steel Car Co., Greenville, Pa.

Inland Steel Co., Chicago, 525 mine cars, to Koppel Industrial Car & Equipment Co., Pittsburgh.

Locomotives Placed

White River Lumber Co., Enumclaw, Wash., one 6-ton Diesel Plymouth locomotive, to A. H. Cox & Co., Seattle.

Car Orders Pending

Atchison, Topeka & Santa Fe, one gasoline-electric rail motor car.

Barge Shipments Increase

New York—Shipments of iron and steel articles through New York state canals for the week ending July 18 totaled 8567 tons, bringing the figure for the season to 74,872 tons. In the corresponding week, last year, 2926 tons cleared and the total for the same period was 50,961 tons. Shipments of pig iron and billets in the week amounted to 2291 tons, and for the season, 29,453, compared with 6728 tons, and 55,078 tons, respectively, last year.

Pig Iron Imported

Philadelphia—Imports for the week ended July 25 include: Chrome ore, Portugese Africa, 2551 tons; pig iron, British India, 4437 tons; steel bands, France and Belgium, 201 tons; steel bars, Belgium, 86 tons, and France, 20 tons; structural shapes, France, 41 tons, and Belgium, 264 tons.

Structural Shapes

Fresh Inquiry Tops 31,000 Tons, with Chicago Postoffice and New Orleans Bridge, Totaling 104,000 Tons, More Active—Claim Prices Firmer in East

STRUCTURAL SHAPE PRICES, PAGE 65

Chicago—Federal building work forms the bulk of structural shape inquiry and fabricators locally are pointing toward the largest pending item of this nature, the Chicago postoffice, taking 45,000 to 50,000 tons of structural material which will be awarded Aug. 10. Several large pending projects are talked of in the Minneapolis and St. Paul district, but as yet plans are not forthcoming. Fabricated prices on small sized jobs awarded during the week continue to reflect easiness but plain structural material is based on a minimum of 1.70c, western mills.

A good-sized award of structurals for Illinois bridge work is expected after Aug. 18.

Boston—A slight pickup in structural awards was noted in the past week. For a state bridge at Bucksport, Me., 500 tons went to the American Bridge Co. Section "B" of the East Boston tunnel was placed, 325 tons going to Carnegie Steel Co. The station at Charles street for the Boston Elevated, 298 tons, was placed with the New England Structural Co.

New York—Bids will be opened Aug. 11 on 7000 tons for the Bronx county courthouse. This is one of several sizable jobs on which bids are to be opened over the next week to 10 days. Since Aug. 1 prices on shapes have shown considerable firmness at 1.70c, Bethlehem. International Engineering Co., Jersey City, N. J., is low on 1900 tons for a state viaduct in northern New Jersey.

Philadelphia—While some low-priced tonnage still is to be shipped, much has been cleaned up, with 1.70c, nearest mill, showing increasing strength. However, new business is light, with a 2500-ton coalbreaker the outstanding award. Bids on the Trenton, N. J., postoffice requiring 2000 tons are due Aug. 25.

Pittsburgh — Specifications for plain structural material show little change, with the outlook clouded by continued quietness in new business. Structural inquiry is spotty and usually involves only small lots. Plain shapes are quoted 1.60c, Pittsburgh.

Cleveland—Inquiries and orders for small lots are slightly more numerous, but the market is devoid of large tonnage requirements. The volume of business in July was about equal to that in June. While shapes are 1.60c, base, Pittsburgh, fabricated steel prices continue weak. The Fort Pitt Bridge Works took the 900 tons for the juvenile courts building. Cleveland.

Birmingham, Ala. — Shops are operating 5 and 6 days a week on contracts booked some time ago. New business is reported steady but small.

Contracts Placed

2500 tons, coalbreaker, Philadelphia & Reading Coal & Iron Co., St. Nicholas, Pa., to American Bridge Co.; was previously reported as awarded another fabricator.

2000 tons, electrical group for Century of Progress Exposition, Chicago, to Gage Structural Steel Co., Chicago. W. E. O'Neil Construction Co., 308 West Washington street, Chicago, general contractor.

1450 tons, postoffice, Fort Worth, Tex., to Mosher Steel & Machinery Co., Dallas, Tex. Ralph Sollit & Sons Construction Co., Chicago, contractors.

1100 tons, Broadway pier, San Diego, Calif., to Virginia Bridge & Iron Co., Roanoke, Va.

650 tons, highway bridge over Platte river, Columbus, Nebr., to Omaha Structural Steel Works, Omaha, Nebr.

600 tons, Pennsylvania railroad bridges at Chicago and Pittsburgh, to McClintic-Marshall Corp., Bethlehem, Pa.

525 tons, state highway bridge, Bucksport, Me., to American Bridge Co.

500 tons, Bergen county administration building, Hackensack, N. J., to Schaefer Iron Works, Edgewater, N. J.

500 tons, garage and power house, Iowa State Teachers' college, to Iowa Steel & Iron Co.

490 tons, 7-story office building, New York, to McClintic-Marshall Corp., Bethlehem, Pa.

450 tons, generating station Kearny, N. J., for Public Service Electric & Gas Co., to Jones & Laughlin Steel Corp., Pittsburgh.

325 tons, Section B of East Boston Tunnel, to Carnegie Steel Co., Pittsburgh.

298 tons, Charles street station for Boston Elevated, to New England Structural Steel Co., Boston.

255 tons, administration building, National Geographic society, Washington, to Dietrich Bros., Baltimore.

241 tons, bridge over Fresno river, Madera, Calif. Plain material to Columbia Steel Co., San Francisco.

200 tons, Pennsylvania railroad bridge, Lancaster, Pa., to American Bridge Co., New York, was previously reported as going to another fabricator.

200 tons, viaduct, Atlanta, Ga., to Ingalls Iron Works Co., Birmingham, Ala.

195 tons, bridge work for Wabash railroad, Springfield, Ill., to Mississippi Valley Structural Steel Co., Kansas City, Mo.

180 tons, Montgomery county bridge, Arcola, Pa., to McClintic-Marshall Corp., Bethlehem, Pa.

180 tons, school, Bloomfield, N. J., to Passaic Steel & Iron Works, East Rutherford, N. J.; Schurman Construction Co., Passaic, contractor.

175 tons, Wayne county, Mich., bridge to R. C. Mahon Co., Detroit.

161 tons, highway work in La Plata county, Colo., to unstated interest.

142 tons, Houston county bridge, Houston, Tex., to McClintic-Marshall Corp., Bethlehem, Pa.

135 tons, packing plant, La Verne Lemon association, La Verne, Calif., to Consolidated Steel Corp., Los Angeles.

125 tons, standpipe, Waltham, Mass., to Pittsburgh-Des Moines Steel Co., Pittsburgh.

100 tons, addition to library, Plymouth, N. H., to Lyons Iron Works Inc., Manchester, N. H.

Awards Compared

	Tons
Awards this week	13,827
Awards last week	37,732
Awards two weeks ago	24,647
Awards this week in 1930	34,432
Av. weekly awards, 1930	35,242
Av. weekly awards, 1931	35,241
Av. weekly awards, July	29,337
Total awards to date, 1930	1,121,206
Total awards to date, 1931	1,162,960

Contracts Pending

7000 tons, Bronx county courthouse, New York; bids to be opened Aug. 11.

4590 tons, bridge over Atchafalaya river, Morgan City, La., for Louisiana Highway Commission. Bids Aug. 25.

3335 tons, bridge over Atchafalaya river, Krotz Springs, La., for Louisiana Highway Commission. Bids Aug. 25.

2500 tons, nurses' home, Cook county, Illinois; ready for bids.

2000 tons, postoffice, Trenton, N. J.; bids Aug. 25.

1900 tons, state viaduct, northern New Jersey, International Engineering Co., Jersey City, low bidder.

1500 tons, cellophane plant for DuPont Co. at Three Rivers, Que.; preliminary plans being prepared.

1000 tons, warehouse, Albany Port district, Albany, N. Y.; bids opened Aug. 4.

1000 tons, economics building, Cornell university, Ithaca, N. Y.; bids asked.

900 tons, New York state highway bridges; bids asked.

750 tons, additional grandstand, Glenview, Ill.

500 tons, 7-story office, National Screen Co., 346-354 East Fortieth street, New York.

500 tons, addition to the Manufacturers Trust Co. building, Beaver street, New York; bids asked.

425 tons, building for Western Union Co., Grand Rapids, Mich.; bids asked.

400 tons, two schools for Hanover, Pa.; opening of bids postponed until Aug. 7.

400 tons, school No. 236, Brooklyn, N. Y.; Agostini Bros., Brooklyn, low bidders.

285 tons, building for Chesapeake & Po- Aug. 11.

314 tons, bridge, Purcell, Okla. Bids

tomac Tekphone Co., Washington; S. J. Prescott, Washington, general contractor.

250 tons, two schools for Park Ridge, Ill.; Duffin Iron Works, Chicago, low on one, Midland Structural Steel Co., Chicago, low on other. Award expected in two weeks.

200 tons, pipe shop, Mare Island, Calif.; Golden Gate Iron Works, San Francisco, low.

200 tons, garage, Borough of Bronx, 181st street, New York City.

190 tons, bridge, Baltimore; Forbes Murphy Co., Baltimore, general contractor.

170 tons, almshouse, Stewardstown, N. H.

150 tons, two 200-foot steel towers for Seattle. Bids rejected and city will do work by day labor.

125 tons, Second Presbyterian church, Newark, N. J.

100 tons, garage, Borough of Bronx, Worcester street, New York City.

100 tons, junior high school, Chester, Pa.; bids Aug. 24.

100 tons, junior high school, Downington, Pa.; bids Aug. 19.

100 tons, government barracks, Carlisle, Pa.; bids Aug. 11.

Unstated tonnage, several state bridges, Missouri and Texas; bids asked.

Unstated tonnage, junior high school, Hastings-on-the-Hudson, N. Y.

Trade Rules Approved for Steel Window Industry

Washington—The solid section steel window industry has accepted its trade practice conference rules following several changes in wording made by the federal trade commission. The commission declined to approve six rules.

Rules relating to practices held to be violations of the law, cover such subjects as: Inducing breach of contracts; false marking or branding; false statements concerning grade or quality; secret payments of rebates; defamation of competitors; maliciously enticing employes of competitors; threats of suit for patent or trade-mark infringement; discrimination in prices; and gift to agents or employes of customers or to agents or employes of competitors' customers.

Plan Oil Burner Convention

The ninth annual convention and oil burner show of the American Oil Burner association will be held in Boston in April, 1932, it was decided at a meeting of the board of directors of the association in Toronto, Ont., recently. It was decided also to have operating exhibits at the show. This is the first time the convention has been held in the New England district.

Martin Specialties Co., 522 Dexter avenue, Seattle, has changed its name to Steel Specialties Co.

Concrete Bars

Week's Awards Fall Below Average for Year to Date but New Inquiry Totals 8000 Tons and Old Inquiry Nears Placement Stage — Prices Firmer in East and Chicago

REINFORCING BAR PRICES, PAGE 65

Chicago—Several important projects before the reinforcing bar market for August add encouragement, despite the recent falling off in moderate size jobs. Extensions to sewage treatment works for the Calumet sanitary district, Chicago, will provide 4500 tons, bids already being in for 500 tons. Bids for the Chicago postoffice, 5000 tons, will be received Aug. 10, and about 1200 miles of Illinois road work is being re-advertised for Aug. 18. Billet bar bids for public work recently disclosed prices as low as 1.60c. Sewer work at Louisville, Ky., calls for 2600 tons.

Boston—More than 1000 tons of concrete bars figured in sales of the past week, reaching a fairly good level for the first time in months. Of this, 600 tons was sold by Concrete Steel Co. for the state hospital at Newton, Conn., and 100 tons by the same company for the new courthouse addition at Providence, R. I. Truscon Steel Co. closed on 125 tons for a bridge at Attleboro, Mass.

New York—Two new lettings of 500 tons or more each were made. Considerable new work is pending, promising further activity. Prices are somewhat firmer and 1.65c, base, Pittsburgh, appears the minimum for shipment at mills' convenience, either in mill or cut lengths. The New York warehouse market on cut lengths in carload lots is 2.25c, base, delivered locally, subject to a sliding scale on less-than-carload lots.

Pittsburgh—July business in reinforcing bars was little changed from that of June, while the August outlook is fair. About 1000 tons of bars will be required for the Pymatuning dam near Jamestown, Pa., bids on which open Aug. 15. Local awards are light. Bars continue 1.60c, Pittsburgh.

Philadelphia—Reinforcing bar demand is slow. No orders over 100 tons are reported. Prices are steady at 1.60c, Pittsburgh.

Cleveland—Except for two moderate lettings, the past week has been devoid of activity in reinforcing bars. Concrete Steel Co. has been awarded 800 tons for a culvert along Belvoir boulevard, Cleveland, and the Fort Pitt Bridge Works Co., Pittsburgh, has been awarded 180 tons for the Juvenile courts building in this city.

Awards Compared

	Tons
Awards this week	**5,106**
Awards last week	**7,167**
Awards two weeks ago	**6,957**
Awards this week in 1930	**6,197**
Av. weekly awards, 1930	**6,990**
Av. weekly awards, 1931	**7,233**
Av. weekly awards, July	**6,759**
Total awards to date, 1930	**221,606**
Total awards to date, 1931	**228,677**

Contracts Placed

800 tons, Belvoir boulevard culvert, Cleveland, to Concrete Steel Co., Cleveland. Loesch & Green Co., general contractors.

750 tons, three bridges on two Indiana State Highway contracts for improvement of Evansville-Ohio River road, to Highland Iron & Steel Co., Terre Haute, Ind., through Globe Construction Co., Evansville, Ind., general contractors.

615 tons, Second group buildings for State hospital, Fairfield, Conn., to Fireproof Products Inc., Hartford, Conn., through general contractor, W. Wales Lines Co., Meriden, Conn.

600 tons, state hospital, Newton, Mass., awarded to Concrete Steel Co.

501 tons, highway, Bronx Parkway extension, Croton Lake to Crompton road, Yorktown, Westchester county, N. Y., to Kalman Steel Co., Chicago, through general contractor, John Arborio Co., Poughkeepsie, N. Y. Last week reported incorrectly as going to Concrete Steel Co.

500 tons, Port Development Organization administration building, Rochester, N. Y., to F. L. Houghes & Co., Rochester, through Stewart & Bennett, Rochester, general contractor.

200 tons, postoffice, Fort Worth, Tex., to Fort Worth Structural Steel Co., Fort Worth, through Ralph Solitt & Sons Construction Co., Chicago.

180 tons, Juvenile courts buildings, Cleveland, to Fort Pitt Bridge Works Co., Pittsburgh. J. L. Hunting Co., contractor.

125 tons, state bridge, Attleboro, Mass., awarded to Truscon Steel Co.

125 tons, postoffice, Oakland, Calif., to Soule Steel Co., San Francisco.

100 tons or more, infirmary and nurses' home, Cedarcrest sanitarium, near Hartford, Conn., to Topper & Griggs, Hartford, Conn.; Charles Smith & Sons, Derby, Conn., contractor.

100 tons, addition to Courthouse, Providence, R. I., awarded to Concrete Steel Co.

100 tons, state highway bridges, Wash-

(*Concluded on Page 73*)

Strip

With Small Buying and Specifications Prices Hold Firmly—Production Is at Low Mark

STRIP PRICES, PAGE 65

Pittsburgh—Strip demand is dull, specifications from the automotive industry still declining while requirements of other consumers lack improvement over the poor July volume. Prices retain a steady tone with no deviations noted from 1.55c and 1.65c for hot strip and cold-rolled strip continuing 2.15c. Operations remain irregular and somewhat lighter with hot mills around 20 per cent and cold strip output

New York—Although an easy tendency prevails in cold-rolled strip, the usual minimum continues 2.15c, Pittsburgh, with less attractive business going as high as 2.25c, Pittsburgh. Hot-rolled strip is firm at 1.55c, Pittsburgh, for wide and 1.65c for narrow. Volume continues restricted, due to light operations at consuming plants.

Philadelphia—The market generally is dull. Hot rolled is 1.55c, base, Pittsburgh, for wide, and 1.65c for narrow. Cold rolled is 2.15c.

Youngstown, O. — Specifications for both hot and cold-rolled strip have tapered in the past week and strip mill operations have dwindled to around 35 per cent. New sales under the classification basis are small but the new bases are holding firmly. The slump in automobile production which is expected to last throughout the month has hit the strip mills especially. Only routine business is expected during the month of August.

Cleveland—Orders for strip are small and intermittent. The new prices of 1.55c and 1.65c, for wide and narrow hot-rolled strip, are held firmly. Cold-rolled strip continues on the local base at 2.15c, with 2.25c on small orders.

Chicago—In the absence of large pending tonnages, both hot and cold-rolled strip present a firm price. Cold-rolled is quoted at 2.15c and most sales are at this figure, though some small lots are figured on 2.25c, Cleveland base. Strip requirements from tractor manufacturers continue dull.

Operations Decline Further, To 30 Per Cent

Pittsburgh—Ingot production continues around 30 per cent while blast furnace operations are at a new low level following the banking of two stacks, leaving seven Corporation and five independent stacks of 54 steelworks furnaces active. Wheeling Steel Corp. has started its blast furnace at Benwood, W. Va., for the first time since January. Sheet and tin plate production are up fractionally at 35 to 40 and 55 to 60 per cent, respectively. Strip operations are lower at 20 per cent, with pipe off at 30 to 35.

	Per Cent
Operations this week	30
Operations last week	32
Operations two weeks ago	30
Operations this week, 1930	57
High for 1931, (March 19)	57
Low for 1931, (July 23)	30

Philadelphia — Ingot operations are off one point to 32 per cent of capacity. A leading mill is operating unchanged at 33 to 34 per cent.

Buffalo—Operations of steel mills in the Buffalo district show a slight falling off over the past week. Bethlehem Steel Co. is operating 10 open hearths in place of 12 and Wickwire Spencer Corp. has reduced from three open hearths to two. Seneca Iron & Steel Co., after being down for a week, has resumed at about 40 per cent. Gould Coupler Works continues to operate one open-hearth furnace on part time.

Youngstown, O. — After starting the week at 42 per cent of capacity Valley steel production dropped 9 per cent to about 33 per cent. This resulted from action of the Republic Steel Corp. in suspending melting operations at Youngstown Monday night. While steel production thus was cut down tin plate plants at Warren, O., increased activity from 13 to 24 mills.

Cleveland—Cessation of operations in three open hearths and addition of one at another producer's plant brought a net loss of 6 per cent in the operating rate here. From 35 per cent last week the rate now has declined to 29 per cent.

Chicago—Ingot output has advanced a point and a half this week to an average of 30 per cent for the district. The slight upward revision started at the close of last week and is being maintained this week. Active steelworks blast furnaces number nine out of 36. A total of 43 open hearths out of 144 are pouring.

Birmingham, Ala.—Two additional open-hearth furnaces are in operation and estimate is given at 40 per cent capacity. Tennessee Coal, Iron & Railroad Co. has eight and Gulf States three open hearths on.

Warehouse Demand Is Dull With Steady Prices

Warehouse Prices, Page 87

New York—Jobbers are considering establishment of new width extras on blue annealed sheets, with likelihood that action of some character will be taken soon. Buying is light. July business fell under June.

St. Louis—Warehouse interests in this area report quiet. Some lines are moving in about seasonal volume, but other commodities are decidedly slow.

As for a number of months, call for materials for highway construction, river and levee work and other engineering projects is considerably more active than other lines.

Boston—Numerous small projects have been the salvation of warehouse interest. Prices are steady and unchanged.

Pittsburgh—Business is slow, orders showing no improvement and involving only small lots. Prices are unchanged but some shading is noted.

Cleveland—The quiet situation has been accentuated by midsummer dullness. Material is moving to manufacturers in more restricted volume. Prices are unchanged and firm. Action on adoption of new sheet classification is expected next month.

Cincinnati—Jobbers here reported July tonnage slightly under June, but were satisfied that the summer recession was so small. Quotations are unchanged.

Chicago—Sales over the last week of July brought summer dullness somewhat earlier than expected. Dull demand from general manufacturing interests has brought low sales volumes. Prices are unchanged, but galvanized sheets from stock are now quoted on a 4.10c base.

Wire Strand Is Let

Memphis, Tenn. — Pidgeon-Thomas Iron Co., Memphis, has been awarded 750 tons of 7/16-inch galvanized wire strand for the United States engineer on a bid of $2.65, f.o.b. Waukegan, Ill.

Concrete Bars Placed

(*Concluded from Page 69*)

ington, to Northwest Steel Rolling Mills, Seattle.

100 tons, hospital, Washoe county, Reno, Nev., to unnamed interest.

100 tons, postoffice at Cicero, Ill., to Olney J. Dean & Co., Chicago.

100 tons, highway, Fort Monmouth, N. J., to Truscon Steel Co., Youngstown, O.

100 tons, Postoffice, Bay City, Mich., to unstated fabricator through Ideal Construction Co., Gary, Ind.

Tonnage unstated, for 5-story store addition for Howland Hughes Co., Waterbury, Conn., to Truscon Steel Co., Youngstown, O., through Tracy Bros., Waterbury, general contractors.

Contracts Pending

4000 tons, sewage treatment work extensions for Calumet sanitary district, Chicago; bids Aug. 13; in addition to bids already in for 500 tons.

2600 tons, sewer work for Louisville, Ky.; bids Aug. 6 and Aug. 20.

1500 tons for reservoir of municipal waterworks, Memphis, Tenn.

1000 tons, Pymatuning reservoir dam, Jamestown, Pa., bids open by the Pennsylvania state water power and research board at Harrisburg, Aug. 15.

843 tons, bridges, Atchafalaya river, Kortz Springs, La. Bids Aug. 25.

592 tons, bridge, Atchafalaya river, Kortz Springs, La., Aug. 25.

500 tons, sewage works for Calumet district, Chicago; John Griffiths & Son Construction Co., Chicago, contractor.

415 tons, Loneys Lane bridge, Baltimore; Aug. 5.

350 tons, elevated superstructure, West Eighteenth to Thirtieth streets, New York, New York Central railroad. Bids on general contract to be opened Aug. 7.

300 tons, highway, Peekskill, N. Y. General contract to John Arborie, Poughkeepsie, N. Y.

200 tons, bridge, Port Huron, Mich.

200 tons, Broadway pier, San Diego. Bids being taken.

178 tons, overpass, Baton Rouge, La. Bids Aug. 25.

150 tons, West Portal school, San Francisco. Bids opened.

150 tons, film laboratory, 801 North Grower street, Los Angeles. Bids being taken.

140 tons, building at United States Industrial Reformatory, Chillicothe, O.

129 tons, highway work, Garfield county, Colo. Bids opened.

118 tons, highway work, San Diego county, Calif. Bids opened.

100 tons, bridgework, Lafourche Parish, La. Bids Aug. 25.

100 tons, wharf, Berth 144-146, Los Angeles; bids opened.

100 tons, hospital, Reno, Nev.; bids opened.

100 tons, wharf, Berth 144-146, Los Angeles; bids opened.

100 tons, hospital, Reno, Nev.; bids opened.

Unstated tonnage, 14,000 square feet, electric welded reinforcing fabric, Pine Ridge Indian agency, Pine Ridge, S. Dak.

Unstated tonnage, 14,000 square feet, electric welded reinforcing fabric, Pine Ridge Indian agency, Pine Ridge, S. Dak.

Central Brass Foundry, 369 Grand street, Portland, Oreg., succeeds the Central Bronze Foundry at the same address.

Condenser Utilizes Welded Steel Plate Construction

A welded steel condenser, said to be the largest ever built, now is being manufactured by the Westinghouse Electric & Mfg. Co., South Philadelphia, Pa., for the Public Service Electric & Gas Co. of New Jersey. Welded steel plate construction is being used in the unit which is of the single-pass, radial-flow type with a capacity of 65,000 square feet. It will serve a single-cylinder turbine generating unit built by the Westinghouse company.

According to the company's engineers, this is the first time that welding has been used in condenser building, although central station authorities have been favorable to welded steel plate construction for some time.

Sponsor Waste Elimination

State-wide simplification and elimination-of-waste program, among Pennsylvania producers, distributors and consumers, is to be sponsored and conducted by the Pennsylvania state chamber of commerce, with the active assistance of the division of simplified practice of the bureau of standards, department of commerce, Washington.

Pennsylvania industries have been in the forefront in promoting simplification and elimination-of-waste programs. One instance cited is the adoption and use of the simplified invoice form by over one hundred of their organizations. Action on the part of the state chamber of commerce will add considerable impetus to these efforts.

Corrosion in Oil Industry $125,000,000 Yearly

Corrosion in the oil industry is exacting an annual toll of one per cent a gallon of the gasoline produced at present, according to V. V. Kendall and F. N. Speller, chemists of the National Tube Co., Pittsburgh, in a research summary made public by the American Chemical society. Losses, direct and indirect, in this industry alone are estimated at $125,000,000 and upward every year.

Heavy damage is sustained by industry in general, and even cities are facing an acute problem in the corrosion of water lines. Research work is aimed at developing the best and most economical steel for service in the oil fields.

The summary also revealed that phenomena of metallic stability and stabilization at temperatures between 1000 and 1400 degrees Fahr. are being investigated in the laboratory of the United States Steel Corp. and in other laboratories with promising results.

In England, a joint committee of the Iron and Steel institute, and the National Federation of Iron and Steel Manufacturers is conducting extensive field tests on the corrosion of copper steels under different atmospheric conditions. The life of steel exposed to outdoor atmospheric corrosion has been increased from two to five times by the addition of 0.25 per cent copper at an average increase in cost of $3 per ton, or about 5 per cent of total cost.

Pipe

Moderate Tonnages in Pending Projects—Oil Field and Standard Pipe in Light Demand

PIPE PRICES, PAGE 87

New York—Interest in the cast pipe market centers in 3300 tons of 6 to 12-inch pipe for Parsippany-Troy Hills township in northern New Jersey. Sixteen bids are now being tabulated with likelihood of an award Aug. 6. The market otherwise is featureless, with prices unchanged.

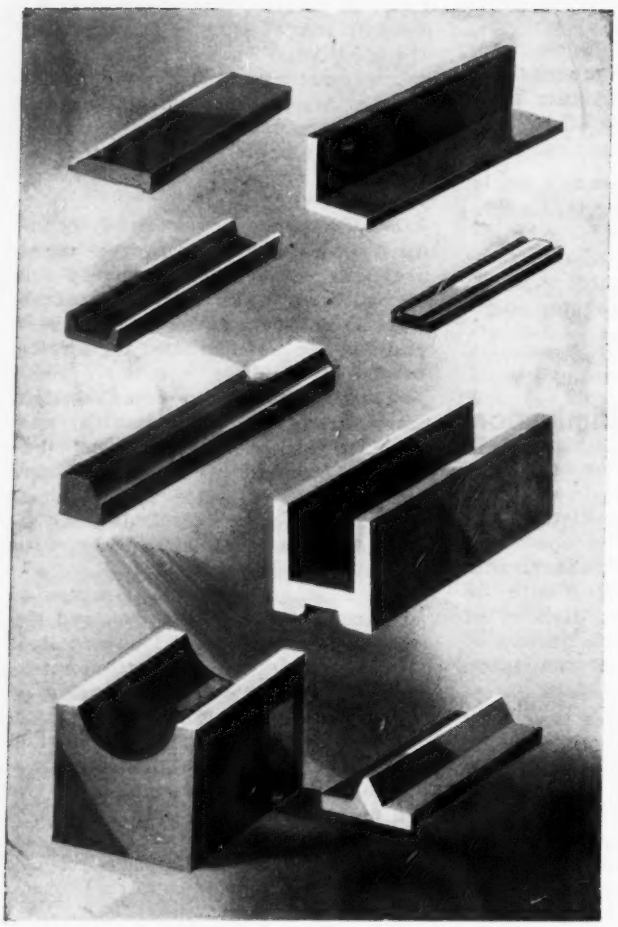
Poirier & McLane Corp., New York, has been awarded the general contract by the city of New York for foundations for the west side elevated highway, Twenty-second to Thirty-eighth streets. This involves 180,000 feet of 18-inch pipe, equivalent to 10,000 tons. The city engineering department considered seamless and electric and lap-welded pipe and decided on the seamless. German makers were active competitors for this business. The pipe is expected to be placed Thurs-

Chicago—Leading in the cast pressure pipe market is 2500 tons of fittings and miscellaneous pipe sizes for the Calumet sanitary district sewage treatment extensions, bids to be taken Aug. 13. This is in addition to 1000 tons of similar work now being bought through contractors for the same project. A mod-

Moltrup

COLD DRAWN STEEL

of
Carbon, Nickel
Chrome Nickel,
Chrome Vanadium
or
ANY S. A. E. ALLOY



To machine such shapes as these . . . . . is cost suicide . . . . . .

. . when these can be cold drawn at Moltrup to "gauge-like" accuracy—at half the cost.

Right now *you* may be worrying because of high cost machining production for special steel shapes. Let Moltrup cold drawn steel shapes solve this problem.

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McKee-Oliver, Inc.
1326 West Carson St.

PHILADELPHIA, Pa.
Moltrup Steel Products Co.
617 Widener Bldg.

SAN FRANCISCO, Calif.
J. J. Brady
650 Howard Street

ATLANTA, Ga.
C. W. Moore
991 Blue Ridge Ave.

CLEVELAND, Ohio
Moltrup Steel Products Co.
508 B. F. Keith Bldg.

HOUSTON, Texas
W. P. Cunningham
910 Rice St.

NORFOLK, Va.
R. E. Murray & Co.
Nat'l Bank of Comm. Bldg.

SEATTLE, Wash.
M. M. Mossman
2712 4th Ave. S.

BUFFALO, N. Y.
N. D. Tilbury
307 White Bldg.

SALES AGENCIES

CHICAGO, Ill.
Central Steel & Wire Co.
4545 Southwestern Blvd.

DETROIT, Mich.
Central Steel & Wire Co.
5035 Bellevue Ave.

DAYTON, Ohio
Central Steel & Wire Co.
East Monument Ave., Extended

MOLTRUP STEEL PRODUCTS CO.

BEAVER FALLS, PA.

erate volume of carload private orders is noted, but utilities are entirely out of the market. Chicago delivered prices for 6 to 24-inch sizes are steady at $42 to $44. Pipe foundries are averaging about four days a week operations.

Boston—Contracts awarded for pipe last week totaled 900 tons. The Westerly, R. I., project, calling for 600 tons of 8 to 16-inch pipe, was awarded to R. D. Wood & Co., Philadelphia, while the 300 tons of gas pipe taken by a public utility interest in Rhode Island was awarded to the American Cast Iron Pipe Co. Medfield, Mass., will close bids Aug. 11 for 1940 tons of 6 to 16-inch pipe, one of the largest contracts for some time. Prices remain easy.

Pittsburgh—Business in all description of tubular products lacks improvement while line pipe output is declining. Seamless casing and drill pipe are in rather light demand from oil fields and activity in standard pipe continues to reflect the quiet in building operations. Few active line pipe projects appear likely to be closed and both awards and inquiry are lacking. Pipe mill operations are lower at 35 per cent.

Birmingham, Ala.—Lettings of the past week or so are under the average of summer. Shops are operating at a little better than 50 per cent and backlogs are diminishing rapidly. Prices at $35 to $36 on six-inch and over are not rigidly adhered to.

Cast Pipe Placed

600 tons, Westerly, R. I., 8 to 16-inch pipe, awarded to R. D. Wood & Co., Philadelphia.

300 tons, Providence, R. I., public utility gas pipe, awarded to American Cast Iron Pipe Co., Birmingham, Ala.

Unstated tonnage, 555 lengths shore discharge pipe, army engineer, Philadelphia, to Lancaster Iron Works Inc., Lancaster, Pa., at $14,624.25.

Cast Pipe Pending

2500 tons, miscellaneous fittings and pipe for Calumet sanitary district sewage treatment extensions, bids Aug. 13; in addition to 1000 tons being purchased through contractors for same project.

324 tons, 4 to 12-inch, Florence avenue, Huntington Park, Calif. Bids opened.

137 tons, 16-inch, San Diego, Calif. Bids Aug. 5.

Steel Pipe Pending

10,000 tons, seamless, for foundation for West Side elevated highway, New York. General contract to Poirier & McLane Corp., New York. Award expected Aug. 6.

2000 tons, 64-inch pipe, Passaic Valley Water commission, Paterson, N. J., Lock Joint Pipe Co., Ampere, N. J., low bidder, indicating pipe will be made of concrete.

1940 tons, Medford, Mass., bids close Aug. 11 on 6 to 16-inch pipe.

Wire

Road Building Best Outlet with Farm Demand Promising—Prices Are Holding in Nominal

WIRE PRICES, PAGE 65

Chicago—Following pronounced declines in July, in part seasonal, wire mills are preparing for a moderate increase in specifications this month, due largely to the favorable crop situation in the South and Southwest. Prices on nails are firm at $1.90 a keg, minimum. Plain wire specifications are slow but hold at 2.20c, minimum. Mill operations are at 30 per cent approximately, but embrace several idle units. Light stocks are universal among producing interests.

Pittsburgh—Wire business during July was little changed from the June volume and producers see little prospects of improvement this month. Demand for wire mesh for road construction continues fairly active but manufacturers' wire and jobbing products continue slow. Prices are largely nominal since little new business is appearing. Producers are quoting $1.90 to jobbers for wire nails with plain wire continuing 2.20c and wire rods $35.

Cleveland—The new price of $1.90 minimum per keg for nails is practically untested, demand continuing light. The market for plain wire is 2.20c, Pittsburgh. Spring wire is 3.20c.

Bolt, Nut, Rivet Movement Is at Slower Rate

Bolts, Nuts, Rivets Prices, Page 65

Pittsburgh — Specifications for bolts, nuts and rivets continue slow. July business was off from the June volume and the smallest for the year to date. Fabricating shops are fairly steady buyers but jobbers are taking little. Prices are unchanged with occasional shading noted in some districts on bolts and nuts from the usual rate of 73 and 10 off. Structural rivets continue 2.75c, Pittsburgh.

Cleveland—Bolt and nutmakers have found July somewhat behind June in sales but August has opened in a way to give hope of better volume. Some railroad business has developed, but not sufficient to add greatly to totals.

Chicago—Declining specifications for bolts and nuts are confidently expected to turn in August. July specifications represented the lowest volume of 1931 for some interests but compared favorably with July, 1930. Demands from automobile plants are tapering, but the agricultural situation shows some brightening. Bolts and nuts are unchanged at 73 and 10 off list. Rivets are quiet at 2.85c, Chicago.

Semifinished Steel Demand Quiet; Prices Steady

Semifinished Prices, Page 76

Pittsburgh—Sheet bars are less active following a fairly substantial upturn in business during July. Billets and slabs continue quiet, with the market for all three grades $29. Wire rods are $35.

Philadelphia—Little interest is noted in the market for emifinished steel. Rerollers are $29, Pittsburgh, and forging quality, $34.

Youngstown, O. — Nonintegrated sheet mills and a number of strip mills are gradually reducing activities and the semifinished market is quiet. Open-hearth activity is around 40 per cent with the independents. Shipments are small. Billets, sheet bars and slabs hold at $29, Youngstown and Cleveland.

Cleveland — Specifications for sheet bars, billets and slabs are being issued at a slower rate, though the leading merchant producer here continues to operate five of its 14 open hearths. Sheet bars, billets and slabs generally are $29, Cleveland or Youngstown, O. A price of $28 on sheet bars recently reported by some northern Ohio consumers is said to have applied on occasional heats of off-quality bars.

Aircraft Materials Bought

New York—Crucible Steel Co. has been awarded 5500 pounds of chrome-molybdenum sheet steel 0.022, 0.028 and 0.035-inch thick on bids of 10.345c for the naval aircraft factory, Philadelphia. U. S. Hammered Piston Ring Co., Paterson, N. J., was awarded 7000 piston rings.

Revere Brass & Copper Co. booked 6000 pounds of copper sheets with 24.375c, while United Aircraft Products Inc., Dayton, O., was awarded 1000 terminals, ball and socket joint, on a bid of 17.00c.

Raw Material Prices

Pig Iron

Per Gross Ton

FOUNDRY, No. 2

Chicago furnace	$17.50
Pittsburgh, dist. fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Valley furnace	17.00
Cleveland fur., local del.	17.00
Philadelphia, delivered	17.26
Virginia, furnace	17.75
Granite City, Ill., fur.	17.50
Buffalo, fur., local del.	17.00
Buffalo, del. Boston	21.41 to 21.91
Buff., all-rail, Brooklyn	19.91 to 20.91
Buff., all-rail Newark	18.28 to 18.78
Ala., Bir. fur., local del.	12.00 to 13.00
Alabama, del. Chicago	17.01
Alabama, del. St. Louis	15.42
Alabama, del. Cincinnati	14.69 to 15.19
Ala., Phila., dock del.	16.25
Ala., Balt., dock del.	16.00
Alabama, New York dock	16.50
Ala., Boston dock del.	16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	14.69 to 15.19
Montreal, delivered	23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	17.50
Buff., all-rail, Brooklyn	20.91 to 21.41
Buffalo, all-rail Newark	18.78 to 19.28
Buffalo, del. Boston	21.91 to 22.41
Virginia furnace	18.25
Eastern, del. Phila.	17.76

FOUNDRY, NO. 1X

Buffalo fur., local del.	18.50
Eastern, del. Phila.	18.26

MALLEABLE

Valley furnace	17.00
Cleveland fur., local del.	17.00
Pittsburgh dist. fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Chicago, furnace	17.50
Buffalo fur., local del.	17.50
Eastern Penna., delivered	18.26 to 20.41
Granite City, Ill., fur.	17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	16.00 to 16.50
Pittsburgh, delivered	16.63 to 17.63
Eastern Penn., del.	16.75
Buffalo fur., local del.	16.50 to 17.00
Montreal, delivered	20.50
Valley, furnace	17.00

BESSEMER

Valley furnace	17.00
Pittsburgh, delivered	18.13 to 18.63
Pittsburgh, furnace	17.50

LOW PHOS.

Valley fur., standard	27.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	16.50
Pittsburgh district fur.	17.00
Pittsburgh, delivered	17.63 to 18.13

CHARCOAL

Lake Superior, del. Chi.	27.04

SILVERY

Jackson County, O., fur., in per cents 6—$21; 7—$21.50; 8—$22; 9—$22.50; 10—$23; 11—$24; 12—$25; 13—$27.

BESSEMER FERROSILICON

Jackson County, O., fur., in per cents 10—$25; 11—$26; 12—$27; 13—$29; 14—$31; 15—$26; 16—$35.

Coke

Prices Per Net Tons

Beehive Ovens

Connellsville furnace	$2.40 to 2.50
Connellsville foundry	3.25 to 4.50
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.70 to 9.10
Chicago, ovens	7.50
New England, del.	10.50
St. Louis, del.	8.50
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	5.50
Portsmouth, O., ovens, Connell., basis	5.50
Buffalo, ovens	8.00 to 8.50
Detroit, ovens	8.00
Philadelphia, del.	8.75

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	10.00
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% manganese	10.00
North African low phosphorus	8.50
Swedish basic, 65%	9.00
Swedish low phos.	10.00
Spanish, North African basic, 50 to 60%	8.50 to 9.00
Newfoundland fdy., 55%	8.50
Tungsten, spot and future short ton unit, duty paid	$11.25 to $11.50
Chrome ore, 48% net ton c.i.f.	$21.50 to 22.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	26 to 28 cents
South African, 52%	26 to 28 cents
South African, 49-51%	25 to 26 cents
South African, 44-47%	24 cents
Indian, 48-50%	nom.
Brazilian, 46-48% (nom.)	22 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	$40.00
Georgia, Alabama	40.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	35.00
Georgia, Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	40.00
Joliet, Ill., East Chicago, Ind.	49.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$65.00

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	40.00
Domes, Chewelah, Wash., base	22.00

CHROME BRICK

Net ton, Chester, Pa., and Baltimore base, 9 x 4½ x 2½	45.00

Semifinished Steel

PRICES PER GROSS TON

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$29.00
Pittsburgh, bessemer	29.00
Youngstown	29.00
Cleveland	29.00
Philadelphia	34.30
Chicago	30.00
Forging, Chicago	35.00 to 36.00
Forging, Pittsburgh	35.00 to 36.00
Forging, Philadelphia	39.30

SHEET BARS

Pittsburgh	29.00
Youngstown	29.00
Cleveland	29.00
Chicago	30.00

SLABS

Pittsburgh	29.00
Youngstown	29.00
Cleveland	29.00

WIRE RODS

Pittsburgh, Cleveland	35.00
Chicago	36.00

SKELP

All grades, Pittsburgh	1.60c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$85.00
*Ferromanganese, del. Pittsburgh	89.79
Spiegeleisen, 19-20%, domestic fur. spot†	30.00
Ferrosilicon, 50 per cent, freight all., c. l.	83.50
Do, less carload	88.50
Do, 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb., con., del.	11.00
Do, for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producers' plants, net ton	150.00
Do, one-ton to c. l.	170.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic per ton carload, 23-25% f.o.b. Anniston, Ala., 24%	122.50

†Carloads. Differentials apply to large quantities.

*To users of carloads to 500 tons annually. Differentials apply to users of larger quantities.

Fluorspar

85 and 5 per cent grade

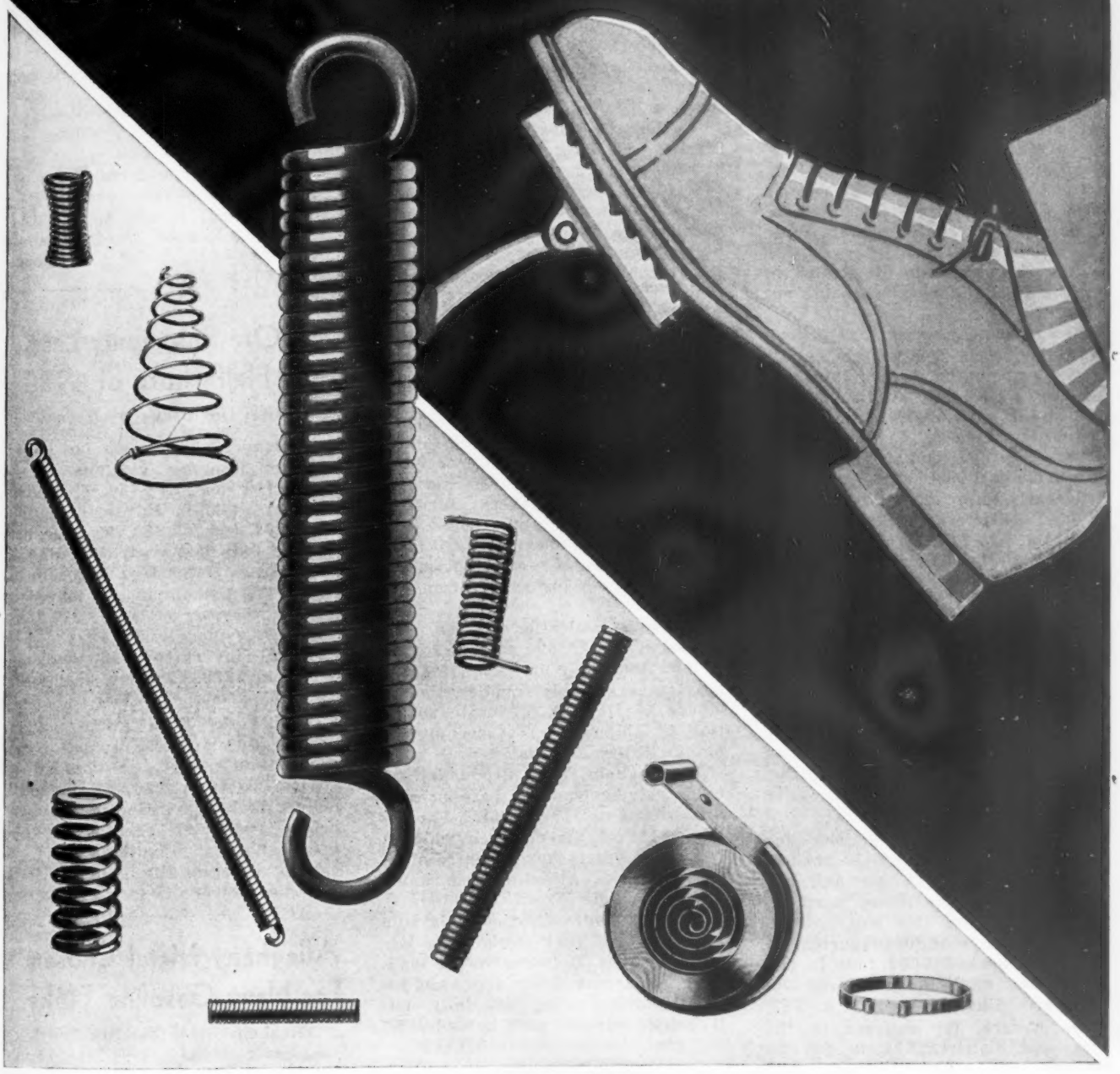
Washed gravel Kentucky and Illinois mines, per net ton	$13.50 to 14.00
Washed gravel, import duty paid east, tide, gross ton	18.50 to 19.00

American QUALITY Steel & Wire Company

SPRINGS

A PRODUCT is no better than the springs on which its operation depends. Failure at a critical moment is sure to mean customer dissatisfaction—expensive service—and loss of future sales. Therefore—the careful selection of a source of supply is of the utmost importance. Realizing this most manufacturers have standardized on American Steel & Wire Company Quality Springs. Consistent quality, reliability beyond question and exceptional service are the facts on which their choice is based. Write us today for complete and detailed facts.

ASSURE THE EFFICIENCY OF YOUR PRODUCT



1831 COMMEMORATING AMERICAN STEEL & WIRE COMPANY 100 YEARS of PROGRESS in WIRE MAKING 1931

AMERICAN STEEL & WIRE COMPANY

208 South La Salle Street, Chicago — SUBSIDIARY OF UNITED STATES STEEL CORPORATION — And All Principal Cities

Pacific Coast Distributors: Columbia Steel Company, Russ Building, San Francisco — *Export Distributors:* United States Steel Products Company, New York

Pig Iron

Prices Holding on Light Volume—Shipments Show Little Change—Two More Stacks Out

PIG IRON PRICES, PAGE 76

Pittsburgh—Shipments of pig iron in July approximate the June rate, but new business is quieter. Demand is restricted to small lots, melters showing no interest in future needs. Production remains light but is slightly ahead of shipments. Prices are nominally unchanged at $17, base, valley, for No. 2 foundry and malleable, basic and bessemer.

Boston—Pig iron sales in the past week fell sharply. Some foundries shut down for the week. Less than 1000 tons figured in the week's sales. An inquiry for 300 tons of No. 2 plain is out from a manufacturer of machinery, for delivery this month, September and October. Two other sizable tonnages are being negotiated.

New York—Another light week prevailed in pig iron, approximately 3000 tons being placed and 3000 tons pending. A leading inquiry calls for 1200 tons of foundry iron for a Connecticut melter. Foundry operations in the metropolitan district averaged 20 to 25 per cent, indicating little early improvement in pig iron demand. Prices on Buffalo iron are easy at $15 to $16, furnace, for shipments to this district. The New England producer is understood to have blown out his furnace.

Buffalo—About 4000 tons of pig iron was sold during the past week by Buffalo producers, practically all in small lots. One Buffalo producer is quoting $16 on eastern business but is not obtaining as much tonnage as others quoting $15.50. Less than $15.50 would be done on an attractive business. The minimum price in the district is firm at $17.

Cleveland—A few inquiries for pig iron are pending but the general tone of the market is quiet and producers do not anticipate much if any improvement this month. Furnace interests with headquarters in Cleveland booked 7000 tons in the past week, a slight gain over the week preceding. Prices hold at $17, base, furnace, for delivery in the Cleveland district; $16 to $17 in western Ohio and Indiana, and $17.50 in Michigan.

The American Steel & Wire Co. this week is banking its B stack at Cleveland.

Youngstown, O.—Small lots of No. 2 foundry and malleable pig iron continue to be bought, but infrequently. All ordinary grades of pig iron are holding at $17, base, valley, while low phosphorus brings $27 valley, for standard copper-free.

Philadelphia—Sales of pig iron are light. The price of foundry iron is unchanged but malleable is easier at $18.26 to $20.41, delivered. Copper bearing, low phosphorus is $21.50 to $23, eastern Pennsylvania furnace.

Cincinnati—Sales of pig iron during the past week were featured by a 1000-ton order, divided among two furnaces by a southern Ohio melter. Prices on northern iron are unsettled, as contrasted to firmness of southern iron at $11, base Birmingham. No inquiries are current.

Chicago—Pig iron specifications so far this month are better than in the comparable period of July. Stovemakers account for most of the recent increase. Some railroad foundries and one automotive melter have issued fair specifications. Job foundries operate at about 20 per cent. One fair order for a stovemaker was placed with a northern furnace. About 700 tons of iron shipped here by vessels seven weeks ago still is on dock. Furnace prices are firm. Occasional orders for silvery iron are noted.

St. Louis—Sales here in the week totaled less than 600 tons of foundry and malleable iron. Melters appear to have ample supplies, though stocks are low. A moderate reduction in shipments is expected this month. Prices are steady.

Birmingham, Ala.—Production exceeds shipments. The base price is firm at $12 to $13 for local delivery with $11 for shipments outside. A few small orders have been received recently from Atlantic coast points and the Middle West.

Toronto, Ont.—Merchant pig iron sales for the past week were less than 300 tons. Melters show no tendency to depart from the hand-to-mouth buying policy. The daily melt is being reduced, and is under 50 per cent. Prices are unchanged.

Ferroalloys Reflect Less Activity in Steelmaking

Ferroalloy Prices, Page 76

New York—While still reflecting curtailed steelmaking operations, demand for ferromanganese has shown some improvement over the past week. There has been little fresh spot buying but a gain is noted in contract shipments. Prices are unchanged at $85, duty paid, on carlots. Domestic spiegeleisen, 19 to 21 per cent, is moving slowly at $30, furnace, in carlots.

Shipments and prices of special ferroalloys are unchanged. On account of business in Europe, the tungsten ore market is said to be firmer but with no real change. Business here is lacking.

Pittsburgh—Little activity is noted in the ferroalloys market, shipments holding at a low ebb while spot business is lacking. Specifications for ferromanganese and spiegeleisen show little change from the quiet rate of the past several weeks. Prices are unchanged in the spot market with small lots of ferromanganese quoted $89.79 delivered, and spiegeleisen $30, furnace.

Iron Ore Shipments Less Than Half Those of 1930

Iron Ore Prices, Page 76

Cleveland — Shipments of Lake Superior iron ore continue to lag far behind those of 1930. The movement by water in July amounted to 4,956,061 tons, 3,630,588 tons less than in July last year, according to the Lake Superior Iron Ore association. The amount of ore moved to Aug. 1 this year is 10,709,320 tons, 13,614,902 tons less than the 24,324,222 tons shipped in the same period in 1930. No new business is developing.

New York—High grade manganese at 26.00c to 28.00c per unit, alongside Atlantic ports, is nominal as buying is at a virtual standstill. Sellers look for little improvement before late September, at which time they believe steel mills will be operating substantially higher. Dullness also prevails in foreign iron ore.

Allegheny Metal Chosen For Navy Gasoline Tanks

Allegheny Steel Co., Brackenridge, Pa., has received orders for 175,000 pounds of Allegheny metal, for use in the construction of gasoline tanks for a new airplane carrier, now being built for the navy, and for six cruisers. The airplane carrier will have 12 of these tanks; the cruisers two tanks each. The Blaw-Knox Co., Blawknox, Pa., received the contracts for the fabrication of 20 tanks.

Scrap

Summer Dullness Limits Buying but Prices Hold Well—Scarcity Gives Strength

Chicago — Steelmaking scrap grades are steady and the market retains moderate firmness in the face of almost negligible forward inquiry. Having maintained fair stability for nearly 60 days, prices are withstanding buying presure exerted by consumers. Dealer buying orders for heavy melting steel have been about $8.75, helping to establish the spread at $8.50 to $9. A reported railroad malleable sale recently remains unconfirmed. Interest is lacking in specialties.

Boston—Scrap continues dull. The absence of the Worcester consumer from the market has left conditions at a very low point. Prices continue steady, with the few advances of the previous week maintained.

New York—The scrap market is

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	7.50 to 9.00
Boston, dealers	4.50 to 5.00
Buffalo, No. 1	9.00 to 9.50
Buffalo, No. 2	7.50 to 8.00
Chicago	**8.50 to 9.00**
Cinn., deal.	7.50 to 8.00
Cleve., No. 1	8.50 to 9.00
Cleve., No. 2	8.00 to 8.25
Det., No. 1 deal.	7.50 to 8.00
Det., No. 2 deal.	**6.00 to 6.50**
E. Pa. del. mill	8.00 to 9.50
N. Y. deal. R. R.	5.00 to 6.50
N. Y. deal. No. 2	**3.50 to 4.00**
N. Y. deal. yd.	4.00 to 4.50
Pitts., No. 1	10.50 to 11.00
St. L. No. 1 sel.	8.00 to 8.20
Federal, Ill.	**8.00 to 8.50**
Granite City, Ill.	7.00 to 7.50
Valleys, No. 1	10.50 to 11.00

COMPRESSED SHEETS

Buffalo, dealers	7.50 to 8.00
Chicago	7.00 to 7.50
Cleveland	8.00 to 8.50
Detroit, dealers	7.00 to 7.50
E. Pa. new mat.	**8.00 to 9.00**
Pittsburgh	10.50 to 11.00
Valleys	10.00 to 10.50

BUNDLED SHEETS

Buffalo	5.50 to 6.00
Cinci., deal.	6.75 to 7.25
Cleveland	6.50 to 7.00
Eastern Pa.	6.50 to 7.00
Pittsburgh	8.50 to 9.00
St. Louis	5.50 to 6.00

SHEET CLIPPINGS LOOSE

Chicago	4.00 to 4.50
Cincinnati	4.00 to 4.50
Detroit, dealers	4.00 to 4.50
St. Louis	5.50 to 6.00

STEEL RAILS SHORT

Birmingham	11.00 to 11.25
Boston, dealers	3.00 to 4.50
Buffalo	12.00 to 12.50
Chicago (3 ft.)	10.00 to 10.50
Chicago (2 ft.)	10.75 to 11.25
Cinci., deal.	13.00 to 13.50
Detroit, deal.	11.00 to 11.50
Pitts. (open-hearth, 3 ft. and less)	12.50 to 13.00
St. Louis	12.00 to 12.50

STOVE PLATE

Birmingham	7.00 to 7.50
Boston, con.	5.00 to 5.50
Buffalo	7.75 to 8.00
Chicago, net	7.00 to 7.50
Cinci., deal. net	4.50 to 5.00
Det., net deal.	4.00 to 4.50
Eastern Pa.	7.50 to 8.00
N. Y., deal. mill	4.50 to 4.75
St. Louis	7.00 to 7.50

COUPLERS, SPRINGS

Buffalo	11.25 to 11.75
Chicago	9.75 to 10.25
Eastern Pa.	13.00
Pittsburgh	12.75 to 13.25
St. Louis	8.75 to 9.25

ANGLE BARS—STEEL

Chicago	9.25 to 9.75
St. Louis	8.25 to 8.75

LOW PHOSPHORUS

Buffalo, billets and bloom crops	12.75 to 13.25
Cleveland bil. and bloom crops	12.00 to 12.50
Eastern Pa.	13.50 to 14.00
Pittsburgh billet bloom crops	14.50 to 15.00
Pitts. sheet bar crops	13.50 to 14.00

FROGS, SWITCHES

Chicago	8.50 to 9.00
St. Louis	9.00 to 9.50

SHOVELING STEEL

Chicago	8.50 to 9.00
Cleveland	6.50 to 7.00
St. Louis	8.00 to 8.50

RAILROAD WROUGHT

Birmingham	**8.00 to 8.50**
Boston, dealers	8.00 to 8.50
Buffalo, No. 1	7.00 to 7.50
Buffalo, No. 2	9.00 to 9.50
Chicago, No. 1	**8.25 to 8.70**
Chicago, No. 2	**8.50 to 9.00**
Cinci., No. 2	7.50 to 8.00
Eastern Pa.	**10.00**
N. Y., No. 1, deal.	**9.00 to 9.50**
Pitts., No. 2	10.50 to 11.00
St. Louis, No. 1	5.00 to 5.50
St. Louis, No. 2	**8.00 to 8.50**

SPECIFICATION PIPE

Boston	**5.00 to 5.25**
Eastern Pa.	10.00 to 10.50
N. Y., deal.	5.50 to 6.00

BUSHELING

Buffalo, No. 1	7.50 to 8.00
Chicago, No. 1	6.75 to 7.25
Cinn., No. 1 dl.	6.00 to 6.50
Cinn., No. 2	3.50 to 4.00
Cleve., No. 2	6.25 to 6.75
Det., No. 1 new deal.	5.50 to 6.00
St. L., No. 1	6.00 to 6.50
Val. new No. 1	9.50 to 10.00

MACHINE TURNINGS

Birmingham	4.50 to 5.00
Boston, dealers	1.50 to 1.75
Buffalo	4.75 to 5.00
Chicago	3.75 to 4.25
Cinn., deal.	3.75 to 4.25
Cleveland	5.00 to 5.50
Detroit	4.00 to 4.50
Eastern Pa.	5.00 to 6.00
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.50 to 8.00
St. Louis	3.50 to 4.00
Valleys	8.00 to 8.25

BORINGS AND TURNINGS For Blast Furnace Use

Boston	1.50 to 1.75
Buffalo	5.75 to 6.25
Cinn., deal.	4.50 to 5.00
Cleveland	6.50 to 7.00
Detroit, deal.	4.50 to 5.00
Eastern Pa.	5.50
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.50 to 8.00

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	4.50 to 5.00
Boston, chem.	7.00 to 7.25
Boston, deal.	1.50 to 1.75
Buffalo	5.75 to 6.25
Chicago	3.75 to 4.25
Cinn., deal.	3.75 to 4.25
Cleveland	6.50 to 7.00
Detroit, deal.	4.50 to 5.00
Eastern Pa.	5.00 to 6.00
E. Pa., chem.	10.50 to 11.00
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.50 to 8.00
St. Louis	5.50 to 6.00

PIPE AND FLUES

Cinn., deal.	6.00 to 6.50

RAILROAD GRATE BARS

Buffalo	6.50 to 7.00
Chicago, net	5.75 to 6.25
Cincinnati	5.50 to 6.00
Eastern Pa.	7.50 to 8.00
N. Y., deal.	5.00 to 5.50
St. Louis	6.00 to 6.50

FORGE FLASHINGS

Boston, deal.	5.00 to 5.25
Buffalo	7.50 to 8.00
Cleve. ov. 10 in.	7.00 to 7.50
Detroit	6.00 to 6.50

FORGE SCRAP

Boston, del.	5.00 to 5.25
Chicago	11.50 to 12.00
Eastern Pa.	9.00 to 10.00

ARCH BARS, TRANSOMS

Chicago, net	10.50 to 11.00
St. Louis	8.25 to 8.75

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	7.50 to 8.00
Chi., steelworks	7.50 to 8.00
Cleveland	6.75 to 7.00
Eastern Pa.	8.00 to 9.00
Pittsburgh	9.00 to 9.50
St. Louis	7.00 to 7.50

STEEL CAR AXLES

Birmingham	12.50 to 13.00
Boston, ship. pt.	11.00 to 12.00
Buffalo	14.50 to 15.00
Chicago	14.00 to 14.55
Eastern Pa.	18.50 to 19.50
St. Louis	12.50 to 13.00

SHAFTING

Bos., ship. pt.	10.00 to 10.50
Chicago	9.55 to 10.10
N Y., deal.	12.00 to 13.00
St. Louis	9.50 to 10.00
E. Penna.	13.00

CAR WHEELS

Birming., iron	9.00 to 10.00
Boston, iron	14.00 to 14.50
Buffalo, iron	10.50 to 11.00
Buffalo, steel	10.75 to 11.25
Chicago, iron	10.00 to 10.50
Chi. rolled steel	10.00 to 10.50
Cincinnati, iron	10.50 to 11.00
E. Pa. steel	12.00
E. Pa. iron	12.50 to 13.00
Pitts. iron	11.00 to 11.50
Pitts., steel	12.75 to 13.25
St. Louis, iron	7.25 to 7.75
St. Louis, steel	9.50 to 10.00

NO. 1 CAST SCRAP

Birmingham	8.50 to 9.50
Buffalo (mach.)	9.00 to 10.00
Boston, textile	10.00 to 10.50
Chicago, mach.	9.80 to 10.35
Chi., railroad	8.70 to 9.25
Chicago, agri.	8.40 to 8.95
Cinn., mach. cup., gross	12.25 to 12.75
Cleve. cupola	10.00 to 10.50
Det., net deal.	8.00 to 8.50
E. Pa. cupola	**12.50 to 13.00**
N. Y. cup. deal.	7.00 to 7.50
N. Y., del. local foundries	12.00
Pitts., cupola	10.00 to 10.50
San Fran., del.	13.50 to 14.00
Seattle	5.00 to 7.50
St. L. No. 1 ma	8.50 to 9.00
St. L. No. 1	8.00 to 8.50

HEAVY CAST

Boston	10.50 to 11.00
Bos. mach. cast	11.50 to 12.50
Buffalo, break	**6.50 to 7.00**
Cleve., break	6.00 to 6.50
Detroit, auto, net deal.	**10.50 to 11.00**
Det., break., dl.	5.50 to 6.00
Eastern Pa.	9.50 to 10.50
N. Y. No. 1 dl.	7.50 to 8.00
N. Y., break. dl.	7.00 to 7.50
Pittsburgh	8.00 to 8.50

MALLEABLE

Boston R. R.	13.00 to 13.50
Buffalo	10.00 to 10.50
Chicago, agri.	7.50 to 8.00
Chicago, R. R.	9.00 to 9.50
Cinci., R. R. Del.	11.00 to 11.50
Cinci., agri. del.	10.00 to 10.50
Cleveland, rail	10.00 to 10.50
Det. auto deal.	10.50 to 11.00
St Louis, rail	7.50 to 8.00

RAILS FOR ROLLING 5 feet and over

Birmingham	10.50 to 11.00
Boston	7.50 to 8.00
Buffalo	10.00 to 10.50
Chicago	10.50 to 11.00
Eastern Pa.	11.50 to 12.00
New York	7.00 to 7.50
St. Louis	10.50 to 11.00

LOCOMOTIVE TIRES

Chicago, cut	11.50 to 12.00
St. L., No. 1	10.50 to 11.00

LOW PHOS. PUNCHINGS

Chicago	10.75 to 11.25
Buffalo	12.50 to 13.00
Eastern Pa.	13.00 to 14.00
Pittsburgh	13.50 to 14.00

STEEL SHOW ISSUE—SEPTEMBER 10, 1931

Information

General

The National Metal Congress (American Society for Steel Treating Exposition) will be held at the Commonwealth Pier, Boston, September 21-25. The following technical societies will participate:

American Society for Steel Treating
American Welding Society
Iron & Steel Division, A. S. M. E.
Machine Shop Section, A. S. M. E.
Iron & Steel Division, A. I. M. & M. E.
Institute of Metal Division, A. I. M. & M. E.

Naturally STEEL will play a prominent part in co-operating to make this Thirteenth Annual Metal Congress a success. The issue of September 10 will carry the complete advance details of exposition and convention. This issue will be in the hands of readers 10 days before the convention opens—ample time to make plans.

This issue will bring the convention and exposition to those who cannot attend.

Publication

A feature of the September 10 issue of STEEL will be a combined editorial and advertising section devoted to the same interests as the National Metal Congress.

Those advertisers desirous of appealing to these same interests will find unusual value in being properly represented in the special section of this issue.

This interest value is not confined to the readers of STEEL who attend the Boston Exposition, but extends in even larger measure to those similarly interested who do not attend, thereby depending more largely upon STEEL to bring the Exposition to them.

COLOR

Two colors will be used—red and black—printed on India tint coated stock.

RATE

Including color and insert position—$150 a page for regular advertisers—$175 per page one time.

CLOSING DATES

Final forms close Tuesday, September 1. Reservation and copy requiring composition should be in Cleveland not later than Monday, August 24.

STEEL

For forty-eight years—IRON TRADE REVIEW

Published Every Thursday

CLEVELAND · NEW YORK . PITTSBURGH . CHICAGO . LOS ANGELES . LONDON

stronger, with scarcity of heavy breakable cast a feature. Some sellers here have refused $10.50, delivered Florence, N. J., this price in itself representing an increase of more than 50 cents a ton. The nominal market on this grade is now $7 to $7.50, New York. The leading Coatesville, Pa., consumer has resumed taking shipments on No. 1 heavy melting steel, with dealers paying $9, delivered. Approximately 1000 tons of this material are being shipped each week by barge to Buffalo, although not on recent orders.

Buffalo—The market for iron and steel scrap is quiet. A few sales of No. 1 machinery cast scrap at $9.75 to $10 are reported and the principal consumer in this district has been able to pick up some scattering lots of No. 1 heavy melting steel at $9 and No. 2 heavy melting steel at $7.50. This low price precludes the placing of any extensive tonnage.

Pittsburgh—Steel and iron scrap prices are generally steady but light trading leaves some quotations nominal. Some small sales of heavy melting steel have been made at $10.75 but supplies are limited and the market is still quotable at $10.50 to $11.

Cleveland—So little steel and iron scrap is moving in this market prices are nominal on most grades, especially those for open hearth use. Some blast furnace scrap is being taken, with prices steady. Movement to the valleys is slightly more pronounced, especially in blast furnace grades. Open-hearth grades have felt some impetus, but it is not pronounced.

Detroit—Borings and turnings are up 25 cents a ton this week but prices on open-hearth grades are unchanged. The market trend shows signs of an upward movement and material advances are expected over the next month.

Cincinnati—Iron and steel scrap shipments show little change, with major consumers either out of the market or taking only a few carloads on contracts. Quotations are unchanged but weak.

St. Louis—Failure of melters to make purchases of iron and steel scrap has resulted in general lowering in prices.

Fractional cuts were recorded on a number of important items, among them iron and steel car axles, car wheels, railroad malleable, No. 1 cars, miscellaneous rails and selected heavy melting steel. An exception was cast iron borings, which were advanced 50 cents per ton. This was due to scarcity. A number of dealers are short and anxious to acquire this grade before the expiration of pending contracts.

Birmingham, Ala.—Dealers are giving every attention to the few orders for old material being received. Heavy melting steel has a little demand but nothing like that of a few months ago. This product holds at $9.

Toronto, Ont.—Business in the Canadian iron and steel scrap markets is dull and listless. Consumers show no interest except when special grades are needed for immediate use.

Spot sales are running to small lots and no future booking is reported. Some call is reported for machinery cast but other iron grades are moving slowly. Dealers are out of the market and prices are unchanged.

Philadelphia—Several thousand tons of heavy breakable scrap has been bought in this district recently. A Florence, N. J., consumer closed a round tonnage at $10.50, delivered, and a Coatesville, Pa., mill has taken two lots aggregating 2000 tons, paying $10 and $9.50 delivered. Due to the latter purchase the market now is $9.50 to $10.50, delivered, compared with $10.50 previously. Bethlehem Steel Co. continues to buy scattered carlots of No. 1 heavy melting steel at $8 delivered Bethlehem. General buying is quiet, with sentiment easier than a week ago.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axle	$11.00
Steel axles	10.00
Car wheels	8.00
Stove plate	8.00
Wrought pipe	2.00
Turnings	2.00
Heavy melting steel	6.00

TORONTO

Steel axles	7.00
Iron axles	7.00
Heavy melting steel	7.00
Turnings	2.00
No. 1 mach. cast (net)	9.00
Malleable (net)	7.00

Alan Wood Bids Low

New York—Alan Wood Steel Co., Conshohocken, Pa., is low on 48,000 pounds of steel floor plates for Brooklyn on a bid of 3.525c, navy department opening tenders July 21 and 22. The same company is low on plates for Philadelphia with American Pressed Steel Co., both 3.505c. Alan Wood Steel Co. bid 3.59c for steel plates for Mare Island and 3.615c, Puget Sound, being low for requirements at the two latter stations.

Coke

Beehive Demand Is Better in Some Districts—Furnace and Foundry Prices Steady

COKE PRICES, PAGE 76

Pittsburgh—Beehive coke orders are slightly more active at some points, though shipments are little changed from a month ago. Occasional spot orders for furnace coke are received, prices for the standard grade being steady at $2.40 minimum. Foundry coke is holding at $3.25 to $4.50, with demand light.

Chicago—Demand for by-product foundry coke continues at the reduced rate set in July. Orders for domestic fuel are slower.

Boston—Warm weather has checked consumption of domestic coke. Closing of a number of foundries also has served to hold down orders for foundry grades.

New York—Coke buying continues at low ebb. Beehive furnace coke is $2 to $2.25, Connellsville, Pa. Standard grades of beehive foundry coke are $3 to $3.25 Connellsville, and premium brands are $4.50, Latrobe, Pa., or $4.30, Connellsville. By-product coke is $8.70 to $9.10, Newark, N. J.; $10.50, New England; and $8.75, Philadelphia. Sellers generally look for a moderate pickup for metallurgical coke in the fall and a sharp improvement in demand for domestic coke.

Cincinnati—Demand for by-product foundry coke during July reflected a seasonal dullness, with tonnage under the June rate.

St. Louis—New orders for metallurgical coke are close to the lowest point of the year. A number of plants have not resumed operations since July 4, and due to the hot weather activities at others have been further curtailed.

Birmingham, Ala.—Demand for coke is slow. Foundry fuel is $5. Eastern business is quiet.

Pacific Coast

Fair Amount of Tonnage Under Consideration but Little Placed —Federal or State Projects Furnish Most Prospective Lots— Prices Lack Test in Many Cases —Warehouse Prices Are Cut

Seattle—The steel trade of the Pacific Northwest is closing an unsatisfactory month in which operations have been low and volume of turnover far below normal and aggravated by open prices.

Several fair-sized projects are pending at the moment but new jobs involving steel have been developing slowly. Most construction planned is for government or state, industrial activity being practically absent.

Bars, Plates and Shapes

Mill prices on bars, plates and shapes are nominally unchanged but there has been insufficient inquiry in recent weeks to give a real test. Quotations are: Plates, 2.00c; shapes, 2.05c; merchant bars, 2.10c; reinforcing, 2.30c. Pacific Coast Steel Corp. plans resumption of operations at the local plant after a month's shutdown.

Coast Pig Iron Prices

Utah basic	$22.00 to 24.00
Utah foundry	22.00 to 24.00
*German	24.25
*Indian	22.00 to 24.00

*C.i.f. duty paid.

Inquiry for reinforcing material is small, jobs pending as a rule calling for less than 50 tons each. Due to a controversy between the state of Washington and the government, there is doubt whether the latter will proceed with the Cle Elum dam, calling for 1700 tons of shapes, bids for which were opened this month. Northwest Steel Rolling Mills, Seattle, will furnish 100 tons of concrete bars for three state highway bridges in Grays Harbor and Lewis counties, Wash.

Fabricators are awaiting award of 4000 tons of shapes for the Seattle federal building, Murch Bros., St. Louis, being low on the general contract. General offices of the Northern Pacific railroad, St. Paul, will open bids Aug. 3 for the substructure of the Duwamish waterway bridge, Seattle. Award of 800 tons of shapes for the superstructure to Wallace Bridge & Structural Steel Co., Seattle, was announced in STEEL July 16.

Finished Materials

Wholesale jobbing houses are marking time and hoping for improved turnover in the fall. The price situation is not improved and no move has been made to establish quotations. Conditions at Portland are similar although not quite so aggravated as in the local field. Imports of steel are small and are not affecting prices here. Demand is slow and no item is showing activity.

Pipe Tonnage Is Up

While no cast iron was awarded this week interest centers in 75,000 feet of 6 to 12-inch pipe for which Yakima, Wash., is in the market, bids early in August. Ferndale, Wash., is also asking tenders for furnishing about 100 tons of 10-inch. Several other projects are also to be up for figures soon.

Old Materials

Closing of local mills this month resulted in further weakening of the market. Prices have sagged and both steel and cast iron are quoted nominally at $5 a net ton. There is no foreign inquiry.

California Demand Shrinks

San Francisco—(*By Air Mail*)—After ten days of fairly heavy activity in the coast markets for iron and steel products, demand has again fallen off and few awards or new inquiries of importance have been reported. Lettings of the week included 1100 tons for a warehouse for the Broadway pier, San Diego, Calif., placed with the Virginia Bridge & Iron Co. Prices show no change from last week.

Bars, Plates and Shapes

The Soule Steel Co. booked 125 tons of bars for the Oakland post office and an unnamed interest secured 100 tons for a hospital in Reno. Bids have been opened on 150 tons for the West Portal school, San Francisco, and on 118 tons for highway work in San Diego county, Calif. New inquiries include 200 tons for a warehouse at the Broadway pier, San Diego, and on 150 tons for a film laboratory on North Gower street, Los Angeles, bids on both of which are being taken. Los Angeles out-of-stock prices remain unchanged at 2.50c base on carload lots, while San Francisco district quotations are firm at 2.60c base.

Little of importance has transpired lately in the plate market. Prices continue to range between 1.90c and 2.00c, c.i.f. coast ports.

Although a large tonnage of structural material is pending or about to be released for figures, few awards of importance were noted. Gutleben Bros., Oakland, Calif., secured a bridge over the Fresno river at Madera, Calif., and plan to weld the job themselves. They have purchased the plain material from the Columbia Steel Co. The Consolidated Steel Corp. booked 150 tons for a packing plant at La Verne for the La Verne Lemon association. Unnamed interests took 161 tons for highway work in La Plata county, Colo. Golden Gate Iron Works was low bidder on 200 tons for a pipe shop at Mare Island. Plain shapes are quoted at 2.05c to 2.15c, c.i.f.

Other Finished Material

Cast iron pipe awards were limited to small lots of less than 100 tons, but the aggregate exceeded 800 tons. It was reported in the July 23 issue of STEEL that an unnamed interest had secured 105 tons of 2-inch pipe for Long Beach, Calif. This tonnage was placed with the Pacific States Cast Iron Pipe Co., Provo, Utah. No award has yet been made on 266 tons of 20 and 24-inch pipe for Burbank, Calif. Bids have been opened on 324 tons for the improvement of Florence avenue, Huntington Park, Calif. San Diego will open bids Aug. 5 for 137 tons of 16-inch pipe.

Zelnicker Asks Receiver

St. Louis—Alfred J. Tofts has been appointed by Circuit Judge Hogan receiver for the Walter A. Zelnicker Supply Co., a railway supply concern, specializing in relaying rails. The company, capitalized at $200,000, has been in business here for 30 years, having offices at 511 Locust street and a plant in East St. Louis.

The receivership petition was filed by Walter A. Zelnicker, president, who asserted the company is sound financially, but needs the protection of a receiver against suits threatened by certain creditors. He said total labilities amount to $102,995.

Reading Steel Casting Co., New York, has changed its name to Reading-Pratt & Cady Co.

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
⅛	58	44½	⅛	23	5
¼	62	50½	¼	28	11
1—3	64	52½	1—1¼	31	15
			1½—2	35	18

LAP WELD

2	57	45½	2	23	9
2½—6	61	49½	2½—3½	28	13
7—8	58	45½	4—6	30	17
9—10	56	43½	7—8	29	16
11—12	55	42½	9—12	26	11

BUTT WELD

Extra strong, plain ends

⅛	55	44½	¼ & ⅜	+13	+48
¼	60	49½	½	23	7
1—1½	62	51½	¾	28	12
2—3	63	52½	1—2	34	18

LAP WELD

Extra strong, plain ends

2	55	44½	2	29	13
2½—4	59	48½	2½—4	34	20
4½—6	58	47½	4½—6	33	19
7—8	54	41½	7—8	31	17
9—10	47	34½	9—12	21	8
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload Discounts, f. o. b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½, 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$35.00 to 36.00
Four-inch, Birmingham .... 39.00 to 40.00
Four-inch, Chicago ..... 45.00 to 47.00
Six to 24-inch, Chicago..... 42.00 to 44.00
Six-inch and over, N. Y..... 32.50 to 34.50
Four-inch, New York ..... 38.50 to 39.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	3.00c
Boston	3.265c
Buffalo	3.00c
Chattanooga..	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	3.00c
Los Ang.	3.40c
New York‡(d)	3.10c
Philadelphia..	2.60c
Pittsburgh	2.60c
Portland	3.15c
San Frans.	2.40c
Seattle	3.00c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.50c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.15c
Chattanooga..	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia..	2.60c
St. Louis	3.00c
Tulsa	3.50c

REINFORC. BARS

Baltimore	2.50c-3.31c
Boston	3.265c
Buffalo	2.95c
Chattanooga..	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los Ang. cl.	2.40c
Los Ang. lcl..	2.70c
New York	2.65c-3.10c
Phila.	2.40c-3.00c
Pittsburgh	2.75c
San Fran. cl.	2.30c
San Fran. lcl.	2.50c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.50c
Young.	2.30c-2.60c

SHAPES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los Ang.	3.40c
New York(d)	3.10c
Philadelphia..	2.50c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.75c

PLATES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles..	3.40c
New York(d)	3.30c
Philadelphia..	2.50c
Phila. floor....	5.10c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.75c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.915c
Buffalo	3.50c
Chattanooga..	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.90c
Los Ang.	3.95c
N. Y. (d)	3.00c-3.40c
Portland	4.00c
Phila.*† (e)..	3.05c
Pitts.**	2.60c to 2.85c
San Fran.	3.65c
Seattle	3.75c
St. Louis	3.45c
St. Paul	3.40c
Tulsa	3.95c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.70c
Buffalo	3.70c
Chattanooga..	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.60c
Detroit	3.50c
Los Ang.	4.70c
New York	3.50c-3.65c
Phila.*†(e)	3.55c
Pitts.**	3.40c
Portland	4.50c
San Fran.	4.15c
Seattle	4.25c
St. Louis	3.80c
St. Paul	3.545c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	5.45c
Buffalo	4.10c
Chattanooga..	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	4.00c
Detroit	4.00c
Houston	5.40c
Los. Ang.	5.10c
New York	4.00c-4.10c
Phila.*† (e)	4.00c
Pitts.**	4.00c
Portland	5.00c
San Fran.	4.65c
Seattle	4.75c
St. Louis	4.35c
St. Paul	4.23c
Tulsa	5.10c

BANDS

Baltimore	3.50c
Boston	4.015c-5.00c
Buffalo	3.35c
Chattanooga..	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	4.30c
New York(d)	3.40c
Philadelphia..	2.90c
Pittsburgh	2.95c
Portland	3.50c
San Fran.	3.75c
Seattle	3.50c
St. Paul	3.75c
Tulsa	3.70c

HOOPS

Baltimore	3.50c
Boston	5.50c-6.00c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.55c
Det. No. 14 & lighter	3.65c
New York	3.75c
Philadelphia..	3.15c
Pittsburgh	3.60c
Seattle	4.90c
St. Paul	3.75c

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.75c
Chicago	3.10c
Cincinnati	3.50c
Cleveland	3.10c
Detroit	3.40c
Los Ang. (a)	4.50c
New York	3.40c
Philadelphia*	3.40c
Pittsburgh	3.10c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.85c
St. Louis	3.35c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.65c
Chicago (soft) (b)	5.65c
Cincinnati	5.80c
Clev. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
‡Domestic bars.
*Plus quantity extras.
**Less than 25 sheets.
*†50 or more bundles.

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YOU may possibly consider that your sheet metal operations are now being performed with the greatest possible speed and economy. Even if you are satisfied with present performance, however, it will pay you to check up with Bliss.

After making a thorough study of your requirements, the Bliss engineers will tell you frankly whether or not they can suggest any improvement in your present methods of making sheet metal parts. Their recommendations are based on the 70 years of Bliss experience in solving sheet metal-working problems of every conceivable kind in many varied lines of manufacture.

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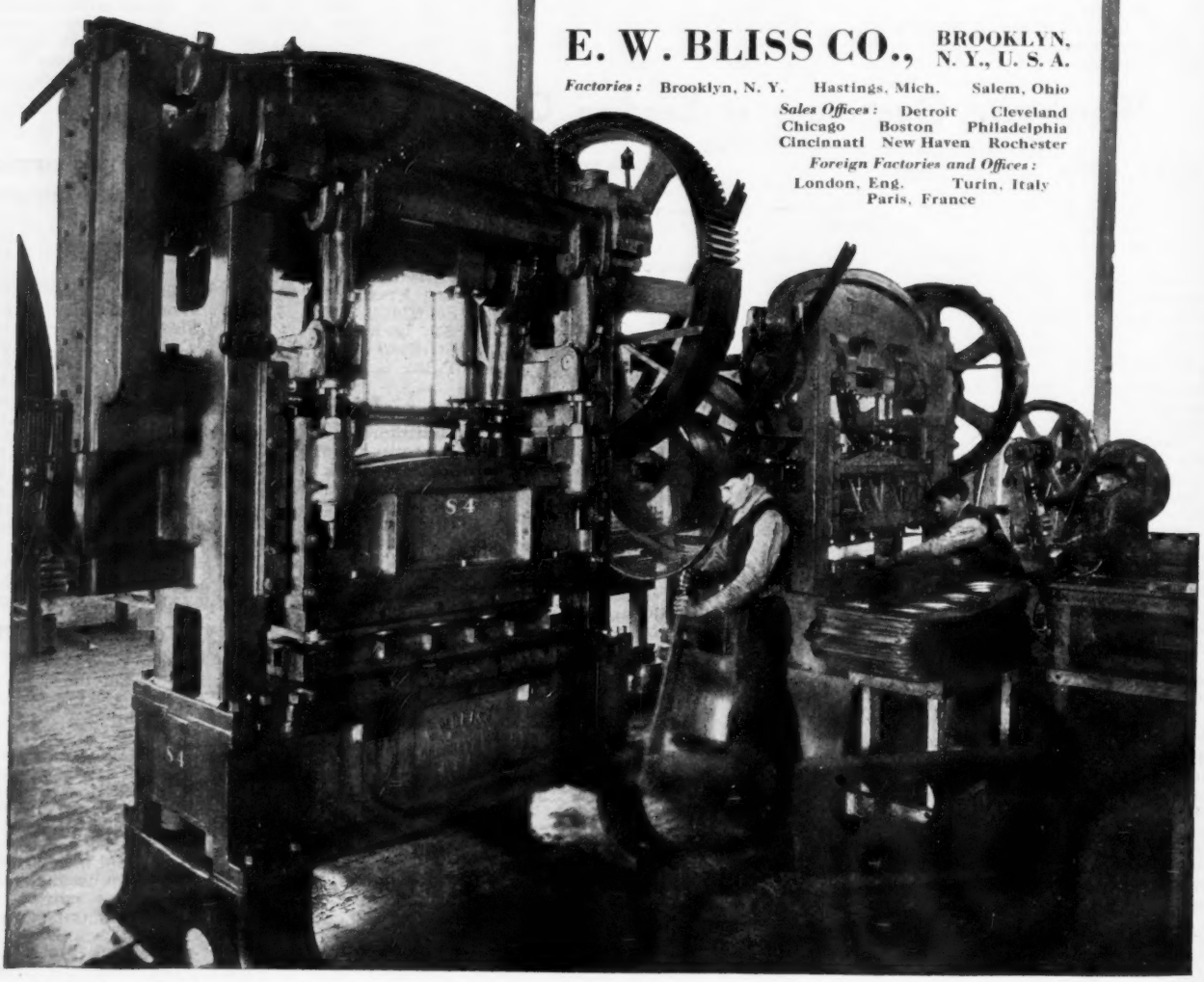

No. 566

Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 7.75c, Conn., for copper

Sheets	
Yellow brass (high)	15.37½
Copper, hot rolled	17.62½
Lead, full sheets (cut ½c more)	8.25
Zinc sheet (100-lb. base)	9.00
Tubes and Pipes	
Seamless yellow brass (high)	20.25
Seamless copper	20.12½
Rods	
Yellow brass (high, full turnings)	13.62½
Naval brass	14.75
Anodes	
Copper, untrimmed	15.87½
Wire	
Yellow brass (high)	15.87½

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass	
New York	4.75 to 5.00
Chicago	4.25 to 4.75
Cleveland	5.00 to 5.50
St. Louis	4.50
Heavy Yellow Brass	
New York	3.00 to 3.25
Heavy Copper and Wire	
New York	5.50 to 5.75
Boston	5.00 to 5.25
Chicago	4.50 to 5.00
Cleveland	5.00 to 5.50
St. Louis	4.75 to 5.00
Composition Brass Borings	
New York	4.25 to 4.50
Yellow Brass Tubing	
Cleveland	3.00 to 3.50
Light Copper	
New York	4.50 to 4.75
Chicago	4.25 to 4.50
Cleveland	4.50 to 5.00
St. Louis	4.50
Light Brass	
Boston	2.00 to 2.25
Chicago	2.50 to 2.75
Cleveland	2.25 to 2.50
St. Louis	2.50 to 2.75
Zinc	
New York	1.25 to 1.50
Cleveland	1.00 to 1.25
St. Louis	1.50
Aluminum	
Clippings, soft, Cleveland	12.00 to 13.00
Clippings, hard, Cleveland	9.00 to 10.00
Borings, Cleveland	4.00 to 4.25
Mixed cast, Cleveland	4.00 to 4.25
Mixed cast, Boston	3.75 to 4.00
Mixed cast, St. Louis	4.00

Secondary Metals

Remelt alumnium No. 12	9.00 to 10.50
Brass ingots, 85-5-5-5	7.87½

Metals

Midsummer Lethargy Has Little Effect on Prices, Copper Alone Revealing Weakness

New York—Business in nonferrous metals in the past week has been almost non-existent. Midsummer dullness has been more accentuated than ever. Yet, through this period prices are holding remarkably steady. Lead has been unchanged for several weeks, zinc has shaded only slightly from its recent substantial recovery, tin shows little net change from a week ago and is higher than ten days ago, while copper continues to weaken. European affairs have played little part in the markets the past week. News from abroad has been confusing so far as the early future is concerned but metal market men believe the situation is distinctly hopeful for the future. Influence of general business on the metal market has shown no definite trend.

Copper—After selling about a week at 7.75c, Connecticut, a little business was done at 7.62½c in some directions, while in others the 7.75c continued. In the past few days custom smelters have sold as low as 7.50c, Connecticut, but it is understood that not sufficient metal has been available nor enough test made of the market to warrant making this one price representative of the entire market. Producers are entirely nominal at 8.00c. Export business has been extremely light at 8.25c, c.i.f.

Zinc—Prime western has eased to 3.85c, East St. Louis, for nearby shipment. For a few days the market was 3.87½c. September metal has been commanding a premium of 2½ to 5 points. The set-back from 3.90c is light in comparison with the recovery in June from 3.20c. Curtailed production and a steady ore market at $23 a ton are back of the relative stability of prime western zinc.

Tin—After lack of demand caused the Straits price to slip back to about 24 cents, the reluctance of sellers caused the market to stiffen to 24.50c. Shipments from the Straits in July totaled 7641 tons and world's visible supply was 51,707 tons at end of month, an increase of 81 tons.

Lead—New business is dull but prices have been firm.

Aluminum—New business is dull but prices are steady.

Coke By-Products Prices Steady; Sulphate Unsettled

New York—Curtailment by lacquer interests has slowed sales of toluol with the result that a threatened shortage has not materialized. Demand for benzol for motor fuel is active and supplies are not large.

Coke By-Products

	Spot
Per Gallon, Producers' Plants, Tank Lots	
Pure benzol	$0.18
90 per cent benzol	0.18
Toluol	0.27
Solvent naphtha	0.24
Commercial xylol	0.24
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants	
Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Atlantic Seaboard	
Sulphate of ammonia	$1.375

Sulphate of ammonia is unsettled, although indications are that some agreement will be reached by the foreign cartel in nitrates, which is a steadying factor. Phenol demand is irregular. Naphthalene spot sales are active for this season.

Wilcox, Crittenden & Co., Middletown, Conn., has acquired the National Marine Lamp Co., Forestville, Conn., and has removed all machinery, stock, office equipment and personnel of the latter company to Middletown.

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead New York	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
July 29	7.75	8.00	7.50	24.25	24.50	4.40	4.22½	3.87½	22.90	6.65	35.00
July 30	7.75	8.00	7.50	24.15	24.40	4.40	4.22½	3.85	22.90	6.65	35.00
July 31	7.70	8.00	7.50	24.25	24.50	4.40	4.22½	3.85	22.90	6.62½	35.00
Aug. 1	7.62½	8.00	7.50	24.37½	24.70	4.40	4.22½	3.85	22.90	6.62½	35.00
Aug. 3	7.50	8.00	7.50	24.50	24.87½	4.40	4.22½	3.85	22.90	6.62½	35.00
Aug. 4	7.50	8.00	7.50	24.87½	25.25	4.40	4.22½	3.85	22.90	6.62½	35.00

Europe

Markets Are Weaker—British Exports and Imports Falling—Germans Offering Concessions

London—(*By Radio*)—Iron and steel markets in Great Britain are lifeless, due to approaching holidays. Pig iron stocks are increasing and exports are extremely small. Railroads are feeling the effects of this lack of business. Imports from the Continent have been reduced. The market for galvanized sheets shows further weakness and demand for tin plate continues dull.

The new steel bar syndicate in France has fixed the minimum price at 500 francs ($9.50). A report from Berlin states German merchants are trying to sell their stocks by offering considerable price concessions.

They offer bars at £3 5s ($15.90). Belgian iron and steel prices are weaker. Coal stocks are heavy and the labor situation in mining is much disturbed.

British Steel Markets Feel Slight Upward Trend

Birmingham, Eng.—Little business is being done in the Birmingham iron and steel market. In view of the approach of the annual holiday consumers are endeavoring to eke out their stock of materials over next week. There are some indications that a better state of things may be expected in the fall.

Some pig iron producers in the Northampton area consider that there is already a slight quickening in demand, one going so far as to assert that inroads have been made upon stocks. This is definitely an isolated case and must not be taken as representing the general state of the pig iron industry, which remains cramped. Markets which have proved profitable in recent weeks show a falling off.

In Scotland, for instance, the annual holidays began nearly two weeks ago and a general resumption of output will not take place until Aug. 3. The acute depression in the Scottish pig iron trade is shown by the fact that five furnaces have been damped down recently, owing to scarcity of business and heavy stocks held by producers and only one furnace is now in an active state of production.

Reports from the Middlesbrough area still contain references to the dumping of Midland iron. Midland ironmasters, however, do not consider any large volume of business is being done. They do not deny that shipment of iron both to Scotland and the North East coast has been of great assistance in disposing of some of their output. Ironmasters on Teesside declare that Midland pig iron is selling there at a figure nearly 10s a ton ($2.42) below the Midland association's zone price.

Midland Prices Untested

Continental prices were easier on account of the unsettled condition of finance in Germany but sufficient trade is not being done to test the selling prices among Midland merchants. Consumers are carrying no stocks, preferring to buy in small tonnages at current prices, owing to uncertainty of the outlook.

In the Staffordshire finished iron trade marked bars are selling slowly, but this product lately has received less than usual support from railways, collieries and other big users. Strip producers are working a few days in each week but they will be taking an extended holiday in August, owing to the slackness of trade and the necessity for carrying out repairs and improvements. Prices for crown bars are cut, owing to the keen competition for orders.

At the Black Country steelworks a large proportion of capacity is idle. Here and there inquiries promise an improved rate of operations in the next few weeks after the August holiday is disposed of. Steelmakers are making every effort to keep their plant up to date though this is not easy in view of financial stringency.

Profit making is reduced to a narrow margin in almost every class of material. Heavy contracts for structural work are noticeably absent though steelworks in the Middlesbrough area are relying for existence at present on production of railroad material and structural steel. Continental competition in semifinished steel is keen in the Middlesbrough district, 1000 tons of sheet bars having been unloaded at the ports this week.

The Buenos Ayres & Pacific rail-

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Aug. 3	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f.o.b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3**	$14.22	2 18 6*	$11.79	2 8 6	$11.79	2 8 6	$11.85	2 8 9
Basic-bessemer	14.58	3 0 0	11.18	2 6 0	11.18	2 6 0	13.37	2 15 0
Hematite, Phos. .02-.05	15.31	3 3 0	.....	.....	.....	.....	17.01	3 10 0
SEMIFINISHED STEEL								
Billets	$25.52	5 5 0	$15.80	3 5 0	$15.80	3 5 0	$15.80	3 5 0
Wire rods	41.31	8 10 0	25.51	5 5 0	25.51	5 5 0	25.51	5 5 0
FINISHED STEEL								
Standard rails	$40.10	8 5 0	$31.59	6 10 0	$31.59	6 10 0	$31.59	6 10 0
Merchant bars	1.52c	7 0 0	.76c	3 9 6	.76c	3 9 6	.80c	3 12 6
Structural shapes	1.68c	7 15 0	.73c	3 6 0	.73c	3 6 0	.73c	3 6 0
Plates	1.79c	8 5 0	.89c	4 1 0	.89c	4 1 0	.90c	4 2 0
Sheets, black, 24 gage	1.90c	8 15 0	1.76c	8 0 0	1.76c	8 0 0	1.76c	8 0 0
Sheets, gal., 24 ga. corr.	2.06c	9 10 0	2.20c	10 0 0	2.20c	10 0 0	2.31c	10 10 0
Bands and strips	2.06c	9 10 0	.92c	4 3 9	.92c	4 3 9	.94c	4 5 0
Plain wire, base	2.06c	9 10 0	1.11c	5 1 3	1.11c	5 1 3	1.11c	5 1 3
Galvanized wire, base	2.39c	11 0 0	1.36c	6 3 9	1.36c	6 3 9	1.38c	6 5 0
Wire nails, base	2.39c	11 0 0	1.13c	5 2 6	1.13c	5 2 6	1.13c	5 2 6
Tin plate, box 108 lb.	$ 3.40	0 14 0	.....	.....	.....	.....	$ 8.26	1 14 0

Domestic Prices at Works or Furnace—Last Reported

			French Francs		Belgian Francs		Renten Marks	
Fdy. No. 3 Pig Iron**	$14.22	2 18 6	$11.76	300(2)	$12.83	460	$17.94	78
Basic pig iron	14.58	3 0 0	12.74	325(1)	12.00	430	19.67	85.50
Furnace Coke	2.67	0 11 0	5.68	145	5.16	185	4.92	21.40
Billets	25.52	5 5 0	19.21	490	18.14	650	25.41	110.50
Standard rails	1.79c	8 5 0	1.41c	785	1.57c	1,210	1.32c	127
Merchant bars	1.63c	7 10 0	.83c	460	.83c	640	1.33c	128
Shapes	1.90c	8 15 0	.99c	550	.81c	620	1.30c	125
Plates	1.95c	9 0 0‡	1.26c	700	.96c	740	1.53c	147
Sheets, black, 24 gage	1.90c	8 15 0	2.19c	1,215	1.82c	1,400	1.22c	117
Sheets, gal. 24 ga., corr.	2.12c	9 15 0	2.39c	1,325	1.47c	1,900	3.43c	330
Plain wire	2.06c	9 10 0	1.80c	1,000	2.08c	1,600	2.15c	207
Bands and strips	2.06c	9 10 0	1.05c	585	1.17c	900	1.54c	148

*Middlesbrough; †Basic; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 11s 0d ($2.67) f. o. b. Ferromanganese £17 9s 6d ($84.93) delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f. o. b.; **Silicon 2.50-3.00. British quotations are for basic openhearth steel. French, Belgian, Luxemburg, and German are for basic-bessemer steel.

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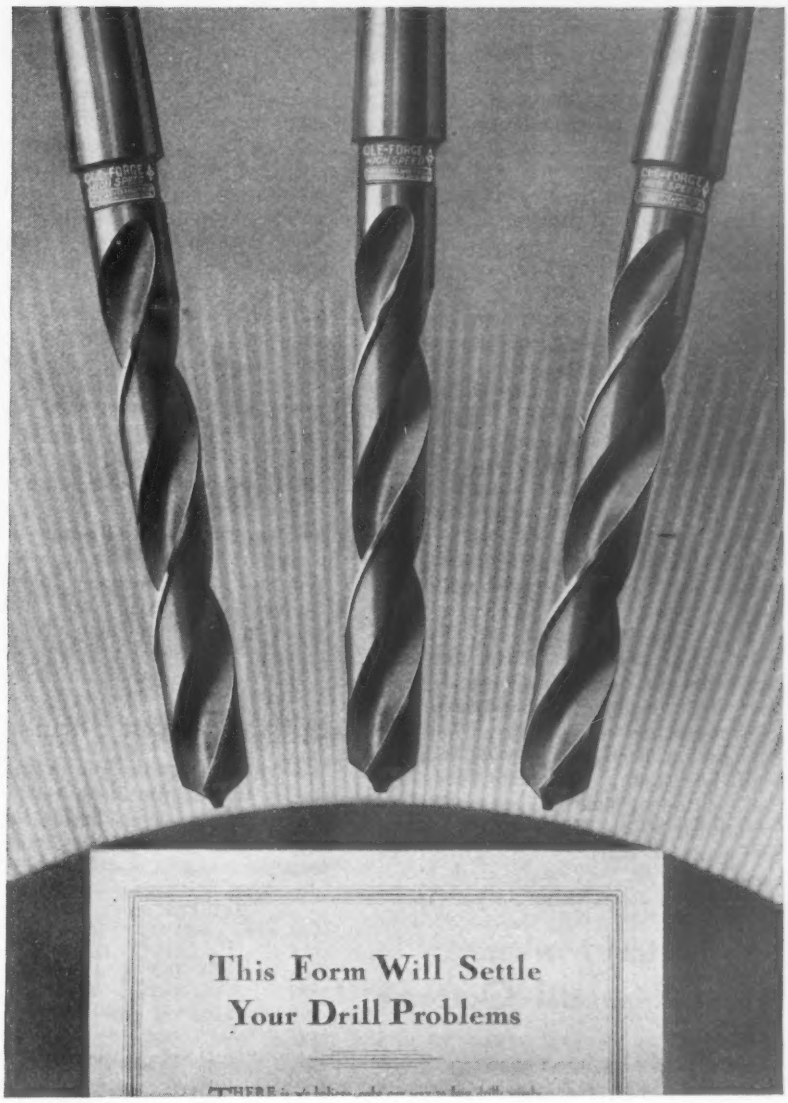

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way has placed orders for six locomotive boilers with Robert Stephenson & Co. Ltd., Darlington. Orders for another two locomotive boilers have also been placed with Beyer Peacock & Co. Ltd., Manchester. In the Sheffield district some further inquiries for railroad materials for China have been received and prospects of the railroad steelworks at Sheffield and Rotherham are considered brighter.

Galvanized sheet prices are on the down grade. Cutting has been rampant since the removal of control, owing to desperate necessity for orders at most mills. Spelter was cheaper again last week and this fact has already been put forward as an argument for lower prices of galvanized sheets. The minimum figure now accepted is £9 7s 6d ($45.37) f.o.b. for 24 gage, but some makers declare it is impossible to accept business on such terms. Price cutting is also acute in 30-gage.

Prices of Welsh tin plates are fairly steady but Continental inquiry has been on a smaller scale, due to the financial crisis in Germany. The Far East and Australia have sent in good inquiries though, generally speaking, the volume of business is restricted. Output in South Wales is around 60 per cent of capacity as against 45 recently.

French Steel Market Awaits Financial Outcome

Paris—The general trend of the French iron and steel market is unchanged, and prices are the same as previously reported. Following the announcement of the Hoover proposals, the general export market strengthened a little and business became more active, but this trend has not lasted long and everyone is anxiously awaiting a solution to the serious difficulties which confront Germany and the central European countries. As a consequence of France's assistance to her eastern neighbors, levies will be increased in that country, and the French budget is certain not to balance; this is creating serious apprehension among industrialists and traders, and buyers are ordering in accordance with daily requirements.

British, Belgian and Dutch producers are competing with French works for sales of hematite pig iron, particularly along the French borders and the Atlantic coast. The other qualities are keenly contested for. With regard to steel products, the situation has shown no improvement. Production still exceeds present requirements and order books are gradually becoming depleted. French railroads and public authorities are not ordering, due to financial difficulties. Semifinished products are especially difficult to sell. Beams and shapes are regularly bought, and in this branch the activity of the comptoir is satisfactory.

Business in steel merchant products remains quiet. News that the comptoir for bars has been constituted and will soon commence operating has led to the placing of a few orders, but not to the extent anticipated. Prices have not strengthened, because the works have tried to book the largest possible tonnage, and this policy has killed the effect which the announcement of the constitution of the comptoir should have had on these prices. For current orders the ruling price is 440 to 470 francs f.o.t. east, with a reduction for large tonnages. In the case of concrete bars it is easy to get 420 francs and even a lower price.

The comptoir for plates and sheets has recently booked some larger orders for flats. When necessary, this comptoir is authorized to meet any competition with rebates. The ruling price for medium sheets is about 810 francs.

British Output Shrinks

London—Production of pig iron in Great Britain in June fell off from May, as did steel ingots and castings. Comparisons follow, in gross tons:

Mon. ave.	Act. Fur. on last day	Pig iron	Steel ingots and castings
1913	338*	855,000	638,600
1928	132	550,800	710,000
1929	162	632,400†	803,000†
1930	76	516,400	608,200†
1931			
Feb.	81	318,200	486,400
March	81	357,100	500,100
April	78	323,200	397,400
May	80	346,500	435,100
June	76	323,800	428,900

(*) Average for year.
†Revised figures.

British Trade in June Is Highest for Year

London—Exports of pig iron and ferroalloys from Great Britain in June were the highest since the beginning of the year, but exports of other iron and steel products in June fell off from May. The aggregate tonnage of iron and steel exported from Great Britain during the first six months was 999,214 gross tons, against 1,797,540 tons in 1930 and 2,240,829 tons in 1929. In value, a drop of about £13,000,000 was registered in comparison with the first half of 1930, and a drop of over £18,000,000 with respect to the first six months of 1929. The total value of iron and steel exports during the first half of this year was £15,789,870.

The total tonnage of pig iron exported in the period January to June this year was 103,011 gross tons, with 8443 tons of ferroalloys; this compares with 162,872 tons and 28,173 tons in the first half of 1930, and 246,666 tons and 51,795 tons in the first half of 1929.

Imports of pig iron, ferroalloys and other iron and steel products into Great Britain in June gained over May. The imports of both iron and steel in June this year were the highest for the year to date. For the first six months total imports of iron and steel were 1,276,777 gross tons, compared with 1,533,039 tons for the corresponding period of 1930 and 1,339,805 tons for 1929. Total imports of pig iron and ferroalloys for first half were 150,281 gross tons, against 140,193 tons for the first six months of 1930. Comparisons follow, in gross tons:

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron and ferro-alloys	Other iron and steel	Pig iron and ferro-alloys	Other iron and steel
1928	9,935	231,390	37,895	317,210
1929	12,310	222,410	45,430	319,520
1930	26,010	216,355	26,445	236,715
1931				
Jan.	23,345	198,428	18,743	148,630
Feb.	20,836	156,220	13,840	129,685
March	22,777	187,690	15,836	154,453
April	26,101	167,289	13,707	174,158
May	27,674	200,083	22,032	145,512
June	29,548	216,786	27,301	135,317

French Coke in Slump

Paris—The output of coke in France in May fell off from April. Imports of coke in May were exceptionally low. Exports of coke made a small gain. Comparisons follow, in metric tons:

Mon. ave.	Production	Imports	Exports
1913	335,620	255,835	17,085
1928	366,660	447,330	34,810
1929	397,435	453,720	39,070
1930	421,235	380,460	27,505
1931			
Jan.	423,789	326,007	23,116
Feb.	397,964	330,094	27,836
March	432,436	351,534	23,099
April	408,928	300,433	19,844
May	398,900	270,361	20,033

German Exports Make Gain

Berlin—Exports of pig iron and ferroalloys from Germany in May were considerably above the normal level for this year to date, probably due to sales effected to Soviet Russia. Exports of other iron and steel products in May were also above those of April.

Imports of pig iron and ferroalloys into Germany in May increased over April but imports of other iron and steel products were smaller. Comparative figures follow, in metric tons:

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron and ferro-alloys	Other iron and steel	Pig iron and ferro-alloys	Other iron and steel
1928	25,535	174,250	24,585	394,575
1929	14,765	137,435	36,115	448,330
1930	14,340	94,320	19,000	380,500
1931				
Jan.	9,962	68,329	9,842	362,912
Feb.	9,125	80,394	8,116	318,228
March	8,934	84,135	7,612	360,940
April	10,419	89,857	8,271	335,877
May	11,727	83,284	20,900	345,806

Machinery

RECURRENT optimism is supported here and there by announcements of large orders received by substantial users of machine tools. Depths reached in the second quarter are regarded by many as low marks of the depression and beginnings of recovery in the fall still are expected. A heavy road building program in Pennsylvania has resulted in a large order for tractors which has made a substantial cut in the number of unemployed machinists in Cleveland. Interest of heavy machinery builders is aroused by an order just placed with General Electric Co. covering a number of transformers, several of which are of record-breaking proportions.

New York—Machine tool buying is slow, although several builders in the East have booked some attractive business from automotive interests. Government inquiry holds well and awards have been made on lathes for Brooklyn and on other tools in the East. Inquiry is light. Builders are operating on curtailed schedules except in a few instances. Railroads are not buying.

Announcement by General Electric Co., Schenectady, N. Y., of receipt of a $1,000,000 order covering 20 large transformers, is of interest to builders of heavy machine tools. These transformers, which are to be constructed at the Pittsfield, Mass., plant, include eight larger than any ever before undertaken by this company, these each being 30-feet high, 27½-feet long and 19½ feet wide.

Special cars will be required for their transportation to stations of Commonwealth Edison Co. of Chicago and of Super Power Co. of Illinois. Shipment is expected to begin early in 1932.

Worcester, Mass.—With domestic buying showing little activity, grinders, nevertheless, are continuing to show some activity abroad. One Worcester manufacturer has two machines ready for shipment to France and interests in Italy again are in the market, inquiry having come from there on small units.

Some domestic inquiry is emanating from the Middle West and also from Connecticut. Much of this, however, is business which actually has been expected for several weeks. Government lathe business still is pending, including schedules for Brooklyn and Mare Island navy yards.

August is expected to be the lightest month of the year. Vacation schedules are making it difficult to close on some orders. Dearth of inquiry on lathes for school purposes is causing a particularly stagnant market for those particular tools.

Pittsburgh—July marked the lowest level of the year in monthly machine tool sales and a number of sellers report that it was the dullest month in more than ten years. Prospects remain poor, inquiry being light and pending work being slow to close.

Inquiry frequently is resulting through investigations in cost saving made by equipment salesmen, although there is no tendency on the part of users to revamp plant facilities in any broad way.

Cleveland—Recurring optimism, supported by some improvement in volume of inquiry but by no corresponding increase in orders, marks this week. There is general feeling that the second quarter marked the low point of the depression.

Keen interest has been aroused by the announcement that the Cleveland Tractor Co. has just been awarded an order for 125 crawler type tractors by the Pennsylvania highway department. This order, which amounts to about $400,000, will give work to about 500 men, and a quickening of the general industrial situation may result.

Cleveland Planer Co. has booked an order from New York Shipbuilding Co. covering a 72 x 72 inch x 30-foot open-side planer, weighing about 14,000 tons, designed for armor plate service.

Chicago—Inquiries are shaping up in the machine tool market here for a number of miscellaneous light production tools, although volume of orders is far from substantiating the appreciably improved sentiment. Nearly 50 smaller presses on inquiry or potentially before the market have enlivened the immediate outlook. An order for six presses has just been closed in the Chicago district, while about $15,000 in other sheet metal shop equipment has been ordered. Scattered miscellaneous tools likewise have been booked.

Western railroads have a few minor inquiries out. Chicago & North Western will buy a small grinder, and has placed a 25-inch drill. Northern Pacific has added a double-head bolt threader and other small equipment to its inquiries of a week ago. Much of the prospective work in the Milwaukee district has become dormant. It is indicated that concessions in machine tool prices have narrowed down primarily to the bids for government work, although prospective buyers are inclined to bargain.

Navy Opens Bids Covering Various Machine Tools

Washington—Bids went in on about 40 miscellaneous machines for navy department yards and stations recently, low bids on some of the items being: Mare Island, boring, drilling and milling machine, Kemp Machinery Co., Baltimore, $9529.20; Thorne, Nev., engine lathe, C. F. Bulotti Machinery Co., San Francisco, $3140; universal shaper, H. F. Allen Co. Inc., New York $2680 and $2780; pipe threading and cutting machine, Curtis & Curtis Co., Bridgeport, Conn., $1398.64; milling machine, Brown & Sharpe Mfg. Co., Providence, R. I., $5890.64 and $5738.64.

Other items and low bidders thereon include: Brooklyn and New York, metal planer, Swind Machinery Co., Philadelphia, $5200; radial drill $39.37; motor driven grinder, Kemp Machinery Co., Baltimore, $2346.70; milling machine, Kearney & Trecker Corp., Milwaukee, $7256.60; keyseating machine, Kemp Machinery Co., Baltimore, $2848.20 and $2753. Oakland, motor-driven lathe, Sebastian Lathe Co., Cincinnati, $1149.

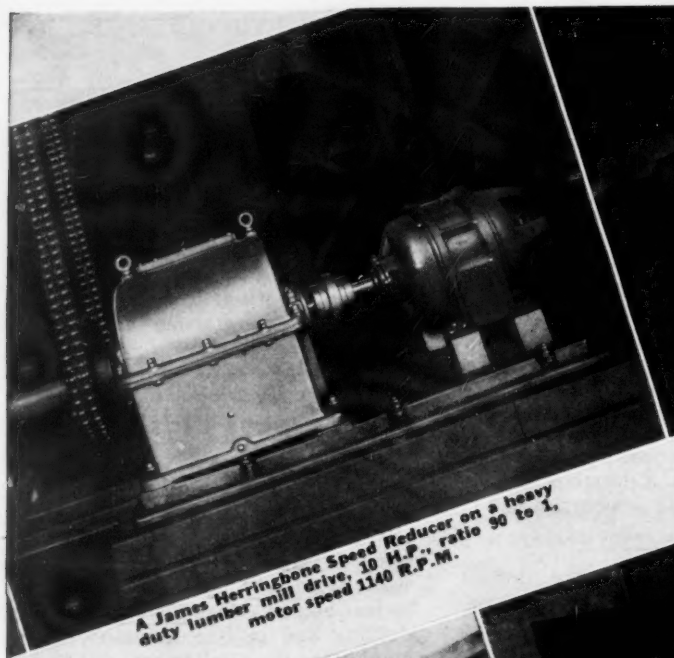
Competition Is Announced On Drill Jig Design

American Machinery and Tools institute, 40 North Wells street, Chicago, invites designers and tool makers to participate in a competition for the design of the best drill jig in each of several types specified as model jigs in connection with the standardization work being carried on by the institute.

Those entering this competition are asked to submit sketches of drawings to the institute in time for a preliminary review to be held Oct. 30, 1931. The ten best of each type then will be selected and finished drawings of these will be requested so as to be placed in final judgment Nov. 30, 1931.

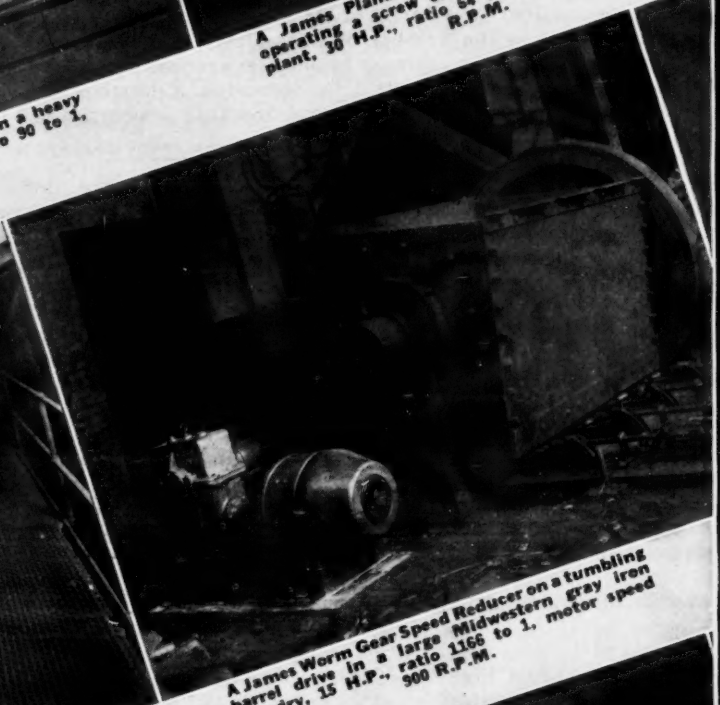
Certificates of merit for the three best designs for each type will be awarded upon the judgment of a committee made up of nationally known engineers. Further information is available from the institute.

A TYPE FOR EVERY SERVICE

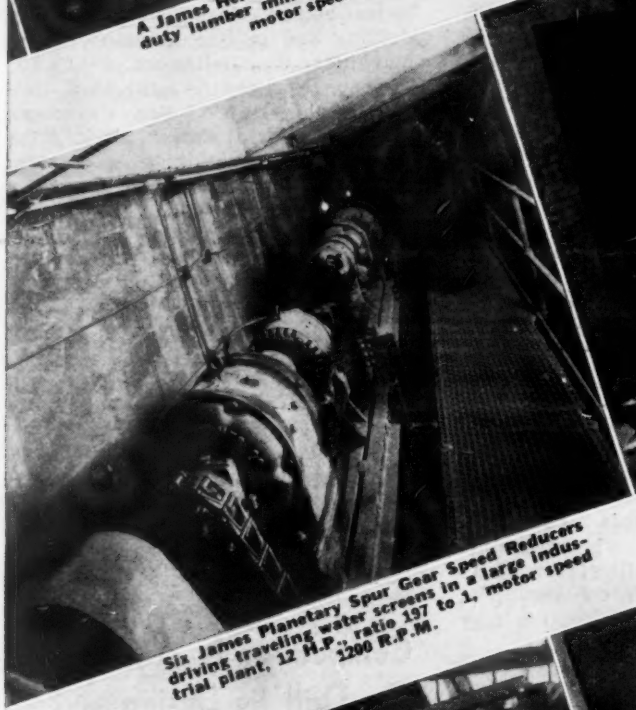


A James Herringbone Speed Reducer on a heavy duty lumber mill drive, 10 H.P., ratio 90 to 1, motor speed 1140 R.P.M.

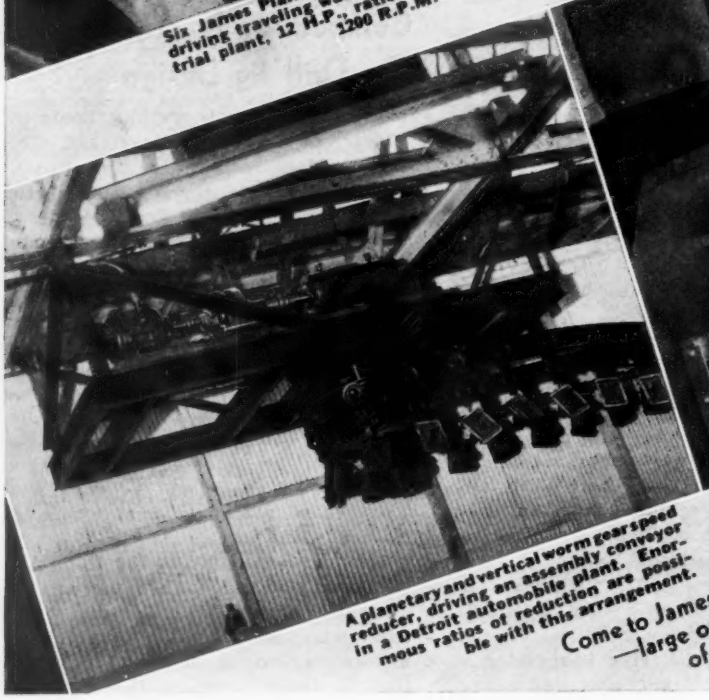
A James Planetary Spur Gear Speed Reducer operating a screw conveyor drive in a cement plant, 30 H.P., ratio 64 to 1, motor speed 900 R.P.M.



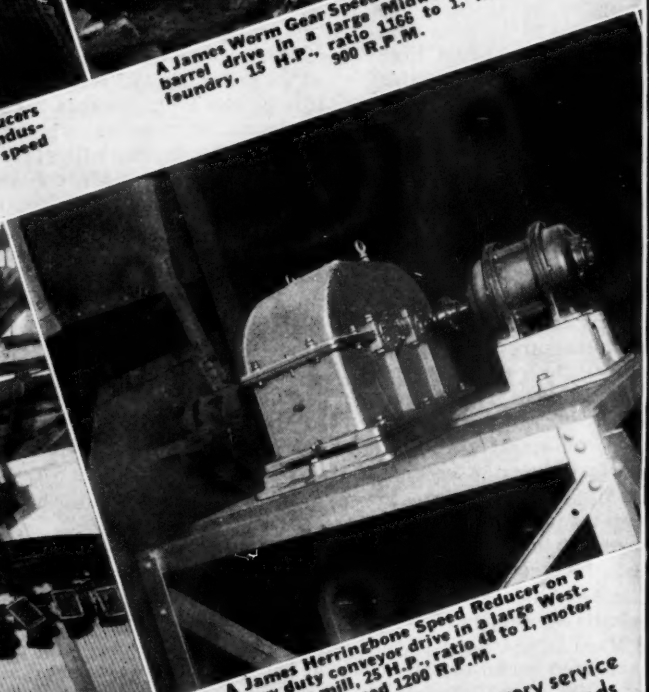
A James Worm Gear Speed Reducer on a tumbling barrel drive in a large Midwestern gray iron foundry, 15 H.P., ratio 1166 to 1, motor speed 900 R.P.M.



Six James Planetary Spur Gear Speed Reducers driving traveling water screens in a large industrial plant, 12 H.P., ratio 197 to 1, motor speed 1200 R.P.M.



A planetary and vertical worm gear speed reducer, driving an assembly conveyor in a Detroit automobile plant. Enormous ratios of reduction are possible with this arrangement.



A James Herringbone Speed Reducer on a heavy duty conveyor drive in a large Western paper mill, 25 H.P., ratio 48 to 1, motor speed 1200 R.P.M.

Come to James for speed reducers—a type for every service—large or small size, heavy or light duty—thousands of complete units carried in stock for immediate shipment.

D. O. James Mfg. Co.
1126 W. Monroe St.
Chicago, Illinois

Gears for Airplane Engines A Quality Product

(*Concluded from Page* 42)

ever, in an electric furnace it can be obtained only by using a gas curtain.

Accompanying photomicrographs show typical examples of S. A. E. 2512 and S. A. E. 6150 grades of steel, at various stages of the heat-treating procedure. Illustrations include both case and core of the carburized samples. All gears are sandblasted after the hardening treatment, and the least amount of scale produced on the work eliminates excessive sandblasting.

The writer has seen some peculiar cases developed by the sandblasting operation. One instance was where the outside diameter of a gear on one end was within the specified tolerances and the other end undersize. This particular gear when tested for uniform hardness gave a scleroscope reading of 80 over the entire surface. The peculiar size phenomenon was due to the fact that one end of the gear was oxidized by an excess of air leaking through the furnace door, and a considerable amount of scale was found on this end. Removal of this excess amount of oxidized scale required a longer time under the sandblasting nozzle. Naturally more of the surface on the outside diameter of the gear was removed from one end than from the other, thus producing an undersize diameter. The sandblasting operation must be performed carefully and the operator should bear in mind that any excessive sandblasting will have a tendency to remove a certain amount of the good surface.

Following the sandblasting procedure all gears are finished in the grinding department, which involves the grinding of teeth and various other portions of the gear.

All airplane gears are demagnetized previous to shipping. If the gears are not given the demagnetizing treatment they may have a tendency to offset the plane's compass.

New Designs in Welded Plate Construction

(*Concluded from Page* 44)

form modified Warren "plate" trusses.

Composite welded structures made up of steels of different analyses were discussed by Mr. Chapman. He described a herringbone gear, for instance, of which the face was made of 0.70 per cent carbon plate formed into a ring, while the spokes were of 0.20 per cent carbon steel, U-shaped. He also discussed the effects of welding on the grain structures of surrounding metal, saying that with the higher carbon steels subsequent annealing treatment always is necessary to correct the grain structure. Preparation of the steel for welding, said Mr. Chapman, is of vital importance. For instance, a certain steel used for welded structures is thoroughly killed steel so as to insure the absence of gas hole laminations and other defects. Carbon content must be kept to low limits if the best type of welding is to be achieved.

Roughly, two sorts of design are possible for most welded structures, said the speaker. Heavy gas-cut sections may be used involving little welding, while, where strong light-weight construction is required, light members have to be reinforced by adequate rib and tubular bracing. The latter method results in a higher cost per pound, but is essential in applications such as marine and transportation equipment where the factor of weight is important.

Emphasizes Stress Ratio

Welded structures always should be designed so as to avoid abnormally large ratios of stress within the structures. Design methods are available to Lukenweld's clients whereby a practical ratio of maximum to minimum stress of 3 to 1 may be attained. Several examples were cited of welded structures where the stress ratio is of special importance; one of these being a welded sheet mill housing in which modifications of the time-honored design produced a structure which is said to eliminate mill shutdowns due to housing breakage. The trend in punch press design is not so much toward a saving in weight as it is toward an increase in rigidity, the rigidity being a direct measure of the die life. Steel disk flywheels, running at twice the speed of cast-iron wheels, dictate an utter revision of the clutch, gear train, shafts and bearings of the power transmission, and in addition permit the use of a high-speed motor costing half as much.

Some new applications of welding were recited by Mr. Chapman. Recently a gas engine for use in one of the oil districts was constructed out of welded plates. The contractor who bought the engine said he liked it because he could drop it from his truck without breaking it. Six-cylinder diesel engines formerly made in aluminum have been made out of welded steel plates, resulting in a lighter engine.

Several new steel-mill applications of welded plate construction were shown, among these being welded charging boxes. It was said that the Lukens Steel Co. now is replacing successfully cast mill table rollers, as fast as they break, with rollers which are made by welding formed rings around a steel shaft.

Other welded structures described by Mr. Chapman included an ore crusher 21 feet long, a coal crusher made out of copper bearing steel and a water-cooled mold for casting copper and brass slabs.

Designs New Scale Car for Blast Furnace Charging

Several new features have been inincorporated in a new25-ton capacity double-compartment scale car developed by Arthur G. McKee & Co., Cleveland, for use in blast furnace charging. The car is of welded construction, and this has decreased weight and cost and increased stiffness, rigidity and stability.

The scales, developed in the experimental laboratories of the Toledo Scale Co., Toledo, O., have all-welded lever construction providing minimum weight with maximum rigidity. The scale dial and recorder is 28 inches diameter at the reading line and 34½ inches outside. Markers for charge increments are attached to the outside of the glass case, thus it is unnecessary to open the case in the weighing operation.

A new convenience is provided by the recorder, for an original and carbon copy of the record of each increment charge is supplied the superintendent's office and accounting department. The scale has an attachment which prints opposite each weighing record the kind of material weighed, thus keeping an accurate record of the weight of each material and sequence of charging.

Other features of the scale car include trucks of arch-bar or cast-steel construction built to American Railroad association standards, air-operated brakes with ample size compressor and storage tanks and hopper doors operated by air.

To Manufacture Products Of Glass Coated Steel

Perforated steel coated on both sides with glass is a product recently developed by Christian Andersen, St. Louis. This material, it is claimed, can be made transparent, translucent or opaque and will be practical for walls, both exterior and interior, floors, roofs and doors.

As explained by the inventor, the punched holes, or foraminations, have the effect of forming a solid mass as the imbedded steel retains the rough prongs. Varying thickness of steel can be used, it is said.

To manufacture this new product, the Multitex Corp. of America, with a capitalization of $1,000,000 has been incorporated under the laws of Delaware. Officers of the company are Mr. Andersen, president; Eugene Geissler, architectural artist, vice president; and Otto E. Schroers, secretary, all of St. Louis.

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

GROTON, CONN.—Electric Boat Co., 11 Pine street, New York, has plans prepared for new units and extensions at its shipbuilding plant here. Approximate cost, $85,000.

CHICOPEE, MASS.—Palmer Steel Co., Springfield, Mass., will start construction of a plant addition for fabrication of structural steel. Two units, 60 x 360 and 82 x 180 feet, each with craneway, will be built.

NORTH WILBRAHAM, MASS.—Power plant will be built here by Collins Mfg. Co., 56 Suffolk street, Holyoke, Mass. McClintock & Craig, 458 Bridge street, Springfield, Mass., are architects. Estimated cost, $50,000.

WESTFIELD, MASS.—Central Specialty Corp., 187 Elm street, whose organization recently was noted, advises through S. F. Cushman Jr., president, that the company will engage in salvaging of cutting tools and general machine work. Equipment operated by Central Machine Shop has been taken over. Some additional equipment is to be installed. (Noted July 30.)

WORCESTER, MASS.—Municipal sewerage commission, city hall, will receive bids for construction of a unit at Worcester street yard to be used as a workshop and storehouse. Cost is estimated at $160,000. R. C. Gorrani, 175 Green street, is architect.

PROVIDENCE, R. I.—State board of public roads, state office building, has plans for building a maintenance headquarters building at Okie and Arline streets. Plans are private. Cost is estimated at $40,000. Structure will be two stories, 100 x 120 feet.

New York

BROOKLYN — Modern Metal Stamping & Novelty Co. has been incorporated with $20,000 capital by Mottur & Mottur, 26 Court street.

BUFFALO—Bison Iron Works has been incorporated with 200 common shares by Elmer E. Finck, Liberty bank building.

DOUGLASTON — Department of sanitation, municipal building, New York, will call for bids for erection of an incinerator here. Cost will total about $500,000.

NEW YORK — Aircraft Hardware Mfg. Co. has been incorporated with 100 common shares by Lammers, Mullaney & Barry, Woolworth building.

NEW YORK—Eastern Brass & Copper Co. has been incorporated with $25,000 capital by J. W. Friedman, 401 Broadway.

NEW YORK—Grossman Steel Stair Corp. has been incorporated with 1000 common shares by S. B. and B. Pollak, 570 Seventh avenue.

NEW YORK—Star Kitchen & Bar Equipment Mfrs. Inc. has been incorporated with $10,000 capital by J. Wilkenfeld, 401 Broadway, to make metal products.

NEW YORK—Schrader Mfg. Co. has been incorporated with $50,000 capital by Morgan, Bragg & Persons, 39 Prospect avenue, Mt. Vernon, N. Y., to make vacuum cleaners.

New Jersey

ENGLEWOOD—Board of education,11 Eagle street, has plans for erection of a vocational school. Estimated cost, $150,000.

NEWARK—Production Co. has been incorporated with $100,000 capital by Maxwell Sosin, attorney, 72 Roosevelt avenue, to manufacture tools.

PERTH AMBOY—Ellis Metal Co. Inc. has been incorporated with $100,000 capital by Harry S. Medinets, 167 Smith street, to deal in all kinds of metal products.

SALEM—Central Public Service Corp., 105 West Adams street, Chicago, will build a coke-handling plant here and rebuild generating equipment.

Pennsylvania

SOUDERTON—Municipal council has received bids for the construction of a sewage disposal plant. Cost is estimated at $65,000.

Ohio

CLEVELAND—Midland Railway-Industrial Supply Co. has been incorporated with 250 no par shares by C. I. Rust, Williamson building.

CLEVELAND—Ticket Issuing Machine Co. has been incorporated with 1000 no par shares by Charles Higley, Leader building.

CLYDE—Municipal council is considering improvements to the municipal light and power plant, including installation of a 750-kilowatt turbogenerator and additional boiler facilities. Hadlow, Hughes, Hick & Conrad, Citizens building, Cleveland, are engineers.

COLUMBUS—State welfare department, W. J. Kennedy assistant director, has requested apportionment of appropriated funds to allow improvements at various state institutions. Included in the request are: Massillon state hospital, water tank, boilers and other equipment, $75,000; hospital for epileptics, boiler, stoker and electrical equipment, $48,500; London prison farm, general construction, boilers and equipment, other items, $149,000; state reformatory, water and sewage equipment, $27,500; reformatory for women, coal handling and boiler equipment, remodeling, $32,000.

TOLEDO—Iowa Railway & Light Corp., Cedar Rapids, Iowa, proposes erection of a power plant here. Estimated cost, $80,000.

TOLEDO—Goerlich's Inc., Norwood avenue, is considering erection of a plant soon for the manufacture of auto heaters, mufflers and other accessories. Estimated cost, $150,000. J. E. Goerlich, 2252 Charlestown avenue, is president.

Indiana

AKRON—Shank Foundries Inc. has been incorporated with 1000 no par shares by G. L. Shank, E. H. Branning, and R. E. Hamilton, Elkhart, Ind., to do general foundry work. Company has secured the plant formerly occupied by the Akron Foundry Co. Operations are to start in the latter part of August, with about 20 employes.

FT. WAYNE—Sheets Construction Co. Inc. has been incorporated with $50,000 and 1000 no par shares by W. A. Sheets, C. E. Carter and J. W. Snyder, to do metal and wood work, architecture and foundry work.

INDIANAPOLIS—Melaun Mfg. Co. plans to build an addition to its manufacturing plant at 144 East Morris street. Capitalization of the company recently was increased to $100,000. Metal stampings and metal art objects are manufactured and lines of coffee urns and vending machines will be added. H. H. Melaun is president.

PERU—Great Western Engineering Corp. has been incorporated with 1000 no par shares to manufacture stokers. Walter Leonard is president and R. R. Rooney is secretary.

Michigan

CASS CITY—Northern Welding Co. has established operations on West Street in space leased in a unit formerly used as a foundry.

DETROIT — Superior Motor Rebuilding Co., 2325 Oakdale avenue, will install machine shop equipment.

MUSKEGON—Baker Auto Parts Co., Grand Rapids, Mich., has leased property at Getty and Hovey streets here for the erection of a plant.

WYANDOTTE—Edwards & Brethren Steel Corp., Arthur W. Edwards president, has purchased three acres of land between Bennett and Labadie streets for construction of a new plant unit for the manufacture of toys.

Illinois

CHICAGO—Verner Iron & Steel Co., 122 South Michigan avenue, has been incorporated with 500 no par shares by Corporation Trust Co., 112 West Adams street, to deal in iron and steel products.

MOLINE—Non-Ferrous Castings Corp., 2116 First avenue, has been incorporated with $5000 capital by Marshall & Marshall, 202 Manufacturers Trust building, Rock Island, Ill., to conduct a general foundry business.

MOLINE—Lambert Engine & Machine Co., Third avenue and Third street, has been incorporated with $25,000 capital by Lowenhaupt & Waite, 928 Planters building, St. Louis, to conduct a general machine shop business.

Southern States

BIRMINGHAM, ALA. — Bullock Bros. Inc., Martin building, is reported to be in the market for a derrick with 80-foot boom for clamshell bucket operation.

WASHINGTON—Bureau of supplies and accounts, navy department, will receive bids Aug. 11 on schedule 6241 for one 20-inch universal turret lathe, and on schedule 6242 for one pipe cutting machine.

JACKSONVILLE, FLA.—City plans to build a hangar at the municipal airport. W. E. Shedden is city engineer.

LAKE CHARLES, LA.—Funderburg Mfg. Co. has been incorporated by J. H. Funderburg, to manufacture electrical and mechanical signaling devices.

BALTIMORE—F. M. Simpson Can Co. has been incorporated with $15,000 capital by Clarence Sweeny, 4410 Ethland avenue.

BALTIMORE—Charles J. Phillips, manufacturer of cut stone, 1336 Greenmount avenue, plans to build a 2-story tool and machine shop, 86 x 93 feet, at 645 East Twenty-fifth street.

BALTIMORE — Arundel - Brooks Concrete Co., Pier 2, Pratt street, will build a plant for the manufacture of premixed concrete at Wolfe & Fell streets and install conveying equipment. Plans are private. Approximate cost, $50,000.

SALISBURY, MD.—Central Public Service Corp., 105 West Adams street, Chicago, plans to rebuild its generating equipment here.

DURHAM, N. C.—Chamber of commerce has made plans for establishment of an airport here and is taking estimates on construction of hangar units.

GOLDSBORO, N. C.—Wayne Agricultural Works Inc., Graves J. Smith president, advises concerning recent fire damage that foundry will be rebuilt immediately. Principal items of equipment damaged, including three molding machines, have been replaced. (Noted July 30).

CHARLOTTESVILLE, VA.—Dixie Flying Service, E. M. Sturahn president, is building a hangar unit, 75 x 80 feet, with lean-to shop unit, 20 x 60 feet.

NORFOLK, VA.—J. H. Boat & Engine Corp. has been incorporated with $50,000 capital by Avalon H. Parker and Wolcott & Wolcott, Seaboard National Bank building.

NORFOLK, VA.—R. A. Burroughs & Co., manufacturers of copper products, plan to build a 2-story plant unit following recent fire damage to company's plant.

NEW MARTINSVILLE, W. VA.—Municipal council is considering erection of a municipal light and power light plant. Survey has been completed. Cost is estimated at $40,000.

Missouri

ST. LOUIS—Multitex Corp. of America has been incorporated with $1,000,000 capital for promotion of a recently patented construction material consisting of perforated sheet steel coated with glass. Christian Andresen, inventor, is president, and Otto E. Schroers secretary. A. F. Ittner, attorney, 1010 Pine street, is interested. Preliminary tests have been completed on the product.

Arkansas

COTTER—Phoenix Utility & Construction Co., subsidiary of Electric Bond & Share Co., 2 Rector street, New York, has started preliminary construction near here on the White river, and will proceed with erection of a hydroelectric plant. Total cost of the project eventually will amount to $25,000,000.

Oklahoma

TULSA—Midwest Mining & Smelting Co. has been incorporated with $10,000 capital by Royal D. Salisbury, 905 East Sixth street.

Texas

BEAUMONT—East Texas Air Transport Co. has been incorporated with $5000 capital by Sam Park to manufacture airplanes and operate air lines.

CLEBURNE—Gulf, Colorado & Santa Fe railroad is erecting a warehouse, 24 x 192 feet, as an addition to its shops here. A. J. Rife Construction Co., 1913 North Harwood street, Dallas, Tex., is contractor.

SAN ANTONIO—The constructing quartermaster, Ft. Sam Houston, will receive bids Aug 24 for construction of engineering shop connecting bays, boiler house and other departments. Structure will be 458 x 572 feet. Cost is estimated at $440,000.

Wisconsin

EAU CLAIRE—Hoeppner-Bartlett Co. has contract for erection of an addition to the Johnson machine shop on Menomonie street.

GREEN BAY—City light and water commission plans improvements at the municipal pumping plant. J. S. Hart, 122 West Washington avenue, Madison, Wis., is consulting engineer. Bids will be received about Sept. 1 by M. P. Doherty, city clerk.

MILWAUKEE—Heil Co., 3000 West Montana street, has awarded contract to Klug & Smith Co. for construction of a yard crane runway, 40 x 195 feet, at a cost of about $10,000.

NEENAH—Valley Sheet Metal Works, Alvin J. Steigler manager, has let contract to C. R. Meyer & Sons Co., Oshkosh, Wis., for a new plant unit to be built on Main street. Structure will be 60 x 100 feet, to be completed by Oct. 1. New machinery is to be installed. Company manufactures cornices, sky lights and heating and ventilating equipment.

PHILLIPS — Electric Windshield Heater Co. advises through Fred R. Struble that the 46 x 112-foot unit being built to replace the plant recently destroyed by fire will be completed in about sixty days. With the exception of one or two machines being reconditioned, fire damaged all machinery beyond use. (Noted July 2).

RACINE—Board of vocational education will receive bids until Aug. 17 for construction of the south wing unit of the vocational school. Unit will be 4-story, 62 x 122 feet. Cost is estimated at $250,00. Frank J. Hoffman, architect, is in charge.

Colorado

SALIDA—Travertine Co. has plans for construction of a mill here. Estimated cost, $1,000,000. John H. Taft, 162 North Franklin street, Chicago, is interested. J. H. Haynes is local representative.

Montana

HELENA—Veterans' hospital has awarded contract for construction of a new building, to include boiler house, to Murch Bros. Construction Co., Railway Exchange building, St. Louis. Total cost is estimated at over $300,000.

Nevada

RENO—Parker Brick Co. has been organized by E. E. Roberts, vice president. Company plans to build a plant unit at a cost of approximately $40,000.

Pacific Coast

LOS ANGELES—Super Stropper Mfg. Co. has started manufacture at 5008-10 Eagle Rock boulevard, producing mechanical stroppers for razor blades. M. L. Luebben is president.

MARE ISLAND, CALIF.—Bureau of supplies and accounts, navy department, Washington, will receive bids Aug. 25

on schedule 6299 for one main motor and reduction gear.

MARE ISLAND, CALIF.—Constructing quartermaster, navy yard, has plans for conversion of building No. 36-48 into a pipe shop. Cost is estimated at $350,000.

OAKLAND, CALIF. — Vigilante Pump Co., 6225 East Fourteenth street, has started production of centrifugal pumps. Charles E. Mowry is manager.

SACRAMENTO, CALIF.—East Bay Refrigeration Products Ltd. has been incorporated with $200,000 capital to manufacture refrigeration equipment. P. J. Lammers, 944 Fifty-sixth street, Oakland, Calif., is interested.

SAN DIEGO, CALIF.—Bureau of supplies and accounts, navy department, Washington, will receive bids Aug. 18 on schedule 6257 for one automatic screw machine.

SUNNYVALE, CALIF.—Bureau of yards and docks, navy department, Washington, has completed plans for erection of the naval airship base here and will call for bids. First unit will be an airship hangar. Ultimate cost of the base is estimated at $5,000,000. (Noted April 2).

BREMERTON, WASH.—Bureau of supplies and accounts, navy department, Washington, will receive bids Aug. 18 on schedule 6252 for three 14-inch engine lathes, for delivery to the Puget Sound navy yard here.

Dominion of Canada

SUMMERLAND, B. C. — Municipal council will build a waterworks pumping plant to cost $20,000. Equipment to be purchased includes one pump with 318-foot friction head and one booster pump with 130-foot friction head. Bids for construction of two pump houses will be called soon. A. L. McNaughton is engineer.

VANCOUVER, B. C.—Clarence Johnston is reported to plan erection of a plant for the manufacture of marine engines. Proposed structure is to be built on West Pender street.

WINNIPEG, MAN.—Maytag Canadian Co. has leased premises at 723 Portage avenue and will install equipment for the manufacture of washing machines. C. M. Roberts is general manager.

EAST ST. JOHN, N. B.—Corporate Steel Products Ltd. has taken over the plant formerly occupied by British Canadian Packing Co. and will equip it for the manufacture of sheet metal products.

PRESTON, ONT.—Parker Steel Shore Co., Guelph street, plans to erect a plant addition. Cost is estimated at $15,000.

STRATFORD, ONT.—Miller Coal Burners Ltd., whose incorporation recently was noted, advises through W. C. Shaw, secretary-treasurer, Woodstock, Ont., that the company was organized for sale and manufacture of a new burner and air supply unit for domestic use. Company has arranged for production of the burner by the Canadian Linderman Co., Woodstock. (Noted May 28).

WEST HAMILTON, ONT.—W. L. McFaul, city engineer, will start work immediately on construction of a pumping station.

MONTREAL, QUE.—Silent Glow Oil Burner Co., Hartford, Conn., will establish a plant on St. Hubert street for the manufacture of oil burning furnaces, oil burners and other items.

MONTREAL, QUE.—American Manganese Steel Co., 333 North Michigan avenue, Chicago, is reported to be negotiating for a site on the river front here for the establishment of a foundry and plant to cost approximately $2,000,000. Company manufactures manganese steel castings, heat and corrosion resistant alloy castings, machinery and parts. W. G. Nichols is president. Company officials advise that there is nothing to the report, no plans having been made as yet.

New Trade Publications

FENCING—New publications by the Page Steel & Wire Co., Bridgeport, Conn., include a booklet on typical fence installations, with style sheets of chain link and wrought iron picket fences. Another describes aluminum woven wire fence, with reasons for its economy.

ANNEALING FURNACE — W. S. Rockwell Co., 50 Church street, New York, is distributing a catalog leaflet, No. 317, devoted to its continuous clean annealing furnace, conveyor type, for use of electricity or fuel. The furnace is fully illustrated and described.

SWITCHGEAR—Bulletins on metal-clad and metal enclosed switchgear installations have been issued by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Circular No. 1915 and Circular No. 1899 are devoted to installations and details.

WELDED BASE DESIGN—Application sheet No. 21, series 2, just issued by the Lincoln Electric Co., Cleveland, is devoted to the design of welded bases. Diagrams and formulas are given to guide the designer in determining stresses and other necessary factors.

LUBRICATION—The current number of the lubrication publication of the Texas Co., New York, is devoted to laboratory determination of lubricating ability and the effect of lubrication on the use of exhaust steam for process heating. Various methods of determination are described. Illustrations include various types of separators for removing oil from steam used in process heating.

GEAR CHAMFERING—A leaflet by the City Machine & Tool Works, Third and June streets, Dayton, O., is devoted to its new type of gear chamfering machine. Illustrations show the complete machine and details of its construction, with ample description of its operation.

ROLLER BEARINGS—Bantam Ball Bearing Co., South Bend, Ind., has compiled a booklet containing an organized progression of sizes of roller bearings for rolling mill and similar use in the heavy-duty field. It offers lists in this field worked out on a progressive basis, showing predetermined series of sizes.

SLING CHAINS—American Chain Co. Inc., Bridgeport, Conn., has prepared a standard sling chain specification book containing information on all standard types of sling chains. It gives specification tables, definitions, cautions and instruction for purchasing. A chart of safe working loads at various angles is included.

HEATING PRODUCTS—Enamel & Heating Products Ltd., with plants at Sackville, N. B., Amherst, N. S., and Victoria, B. C., has issued a bulletin describing and illustrating achievements of the company and a history of its plants and manufacturing processes. Included are descriptions of the plants, biographies of officers and founders and descriptions of manufacturing processes.

CARBOLOY-TIPPED TOOLS—Ex-Cell-O Aircraft & Tool Corp., Detroit, in Catalog C-231 describes various types of standard tipped general purpose tools, drills and special tools. Illustrations show the tools, with drawings to show angles and details.

DROP FORGED OUTLETS—Bonney Forge & Tool Works, Allentown, Pa., in a current bulletin illustrates its line of welded and threaded drop forged outlets for pipe installations, illustrated to show their application. Tables of standard stock sizes are included.

RUSTLESS IRON—Superior Steel Corp., Grant building, Pittsburgh, has issued a bulletin on its chrome and nickel chrome iron alloys in strip form. A tabulation of brands of rustless iron is given and characteristics and results of tests are included, with suggestions for a wide variety of uses.

SPEED REDUCERS — Palmer-Bee Co., Detroit, is distributing Catalog No. 53, devoted to its speed reducers, with worm, herringbone or spur gears. Data on flexible couplings and subbases are also presented. It is amply illustrated. Tables are included showing horsepower ratings, dimensions, weights and standard ratios.